SOCIAL SCIENCES

INDUSTRIAL MEDICINE

Industrial Health, Occupational Diseases and Traumatic Surgery

February, 1945

Consolidated Vultee's Experience
— Placement, Examination, Protection, Routine —

Penicillin Therapy
— In Industrial Medicine and Surgery —

Fixation of Fractures
— A Symposium of Expert Opinion —

Healthy Industry
— Industrial Medical Service in England —

Medical Statistics
— Standard Oil Company of New Jersey —

Industrial Dermatitis
— A Practical Approach —

Re-employment of Service Men
— Placement and Follow-up —

Invitation to Cleanliness
— "The Medical Uses of Soap" —

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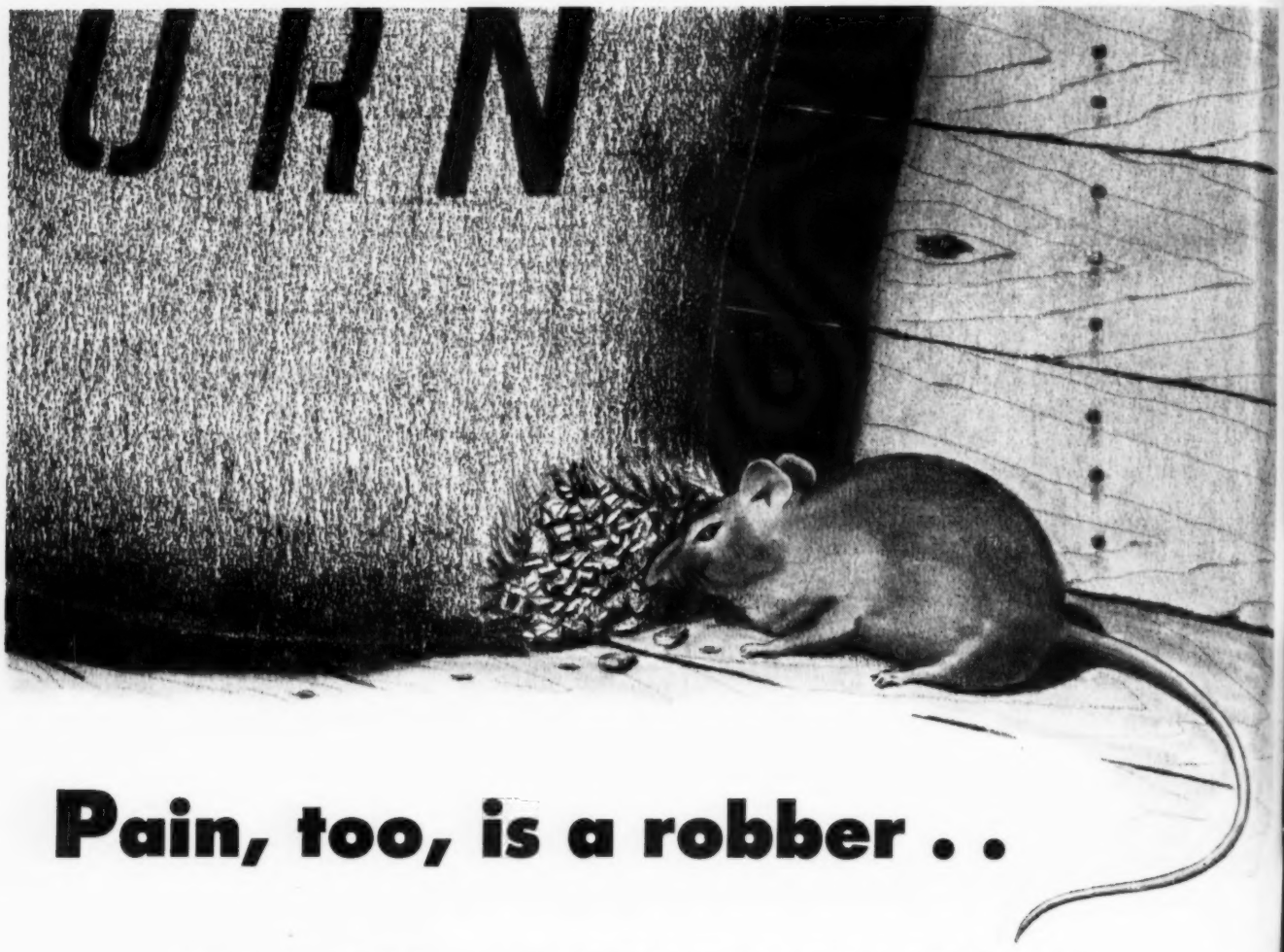

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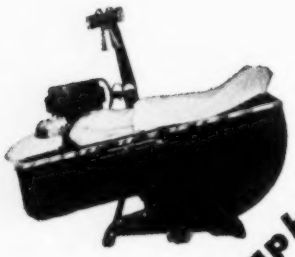

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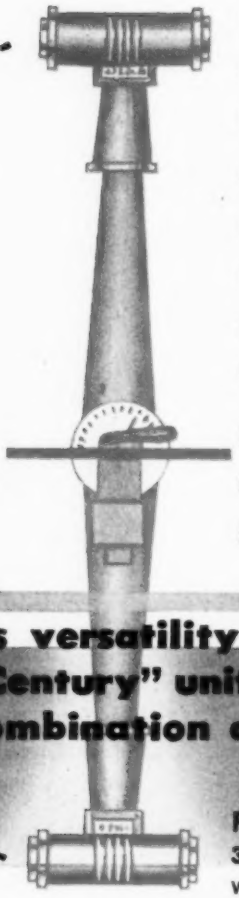

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Industrial Medicine | Volume 14 | FEBRUARY, 1945 | Number 2 | Industrial Medicine

This Month

CONSOLIDATED Vultee's Experience ..... A. C. Dick, M.D. 81
—A Brief Appraisal of the Consolidated Vultee Program for Job Placement, Physical Examinations, Protective Measures, and Routine Procedures (With C. O. Sappington, M.D., Dr. P.H.)

NEW Union Health Plan ..... Leo Price, M.D. 87
—Joint Board of Dressmakers, I.L.G.W.U.

THE INDUSTRIAL Dermatitis Program ..... A. Fletcher Hall, M.D. 88
—A Practical Approach

RE-EMPLOYMENT of Veterans ..... E. H. Groth 91
—Placement and Follow-up

MEDICAL Statistics for 1943 ..... M. G. Allen 94
—Standard Oil Company of New Jersey

INVITATION to Cleanliness ..... William Rufus Redden, M.D. 98
—Review of "Medical Uses of Soap"

INDUSTRIAL Medicine ..... Captain T. J. Carter (MC) 100
—Its Future Needs

AMERICAN Association of Industrial Physicians and Surgeons 102
—Constitution and By-Laws

EDITORIAL 106

CENTRAL STATES Society of Industrial Medicine and Surgery 109
—Mid-Winter Scientific Sessions

PENICILLIN Therapy ..... Walter S. Priest, M.D. 110
—In Industrial Medicine and Surgery

FIXATION of Fractures ..... (Panel Discussion) 120
—Frederick W. Slobe; Lt. Col. Philip Lewin; William R. Cubbins; A. H. Diehr; H. W. Wellmerling

HEALTHY Industry ..... Dr. Jack Tarsh 133
—The Industrial Medical Service of the Automatic Telephone & Electric Co. Ltd., London-Liverpool

INDUSTRIAL HEALTH and DISEASE:

SICK Absenteeism and Health Certification 159
—For Industrial Workers

DETERMINING Health Hazards ..... Lester M. Petrie, M.D. 159
—In Industrial Occupations

INDUSTRIAL NURSING:

THE INDUSTRIAL Nurse's Responsibility ..... Mildred Moore, R.N. 165
—To Other Fields of Nursing

INDUSTRIAL Nursing 167
—Job Classification, Definition of Titles, Job Descriptions, Qualification

"A SPOT on the Lung" ..... Max Pinner, M.D. 171
—Light Use of a Dangerous Term

Personal News ..... 8 Comment and Opinion . 22, 104
General News ..... 12 Current Articles 48
Activities of State Health Departments 46

A GOOD starting point this month is a definition recently quoted by Dorothy Thompson: *"The function of journalism can only be to enlighten as to what is actually happening"*. . . . ENLIGHTENMENT as to the better manifestations of industrial practice in England is furnished by our reproduction (page 133) of the report of the industrial medical service of the Automatic Telephone & Electric Co. Ltd., of London and Liverpool. This, in booklet form, had two printings at home; its careful reading explains why it was interesting there, as well as why it will be here. The text is given in full, practically verbatim. The Absence Recording System (page 148) is particularly interesting. It applies to conditions of "directed labor," from which "many employees would welcome their release," much more stringent than is the case in this country. And yet it is implied (page 158) that even there absence from work has not yet become as much of a "national problem" in war-time as it will become under the peace-time application "of a national scheme of a type envisioned by Sir William Beveridge." There is much food for thought in this implication. "The funds will not stand the payment of sickness-benefit unless a method is evolved to check the good faith of every individual absence." The Wagner-Dingell proponents on this side of the water apparently have a blind spot in the direction of this inevitable corollary of government medicine. Another interesting conclusion (page 158) is that "industry will not pay for the recording of sickness-absence from work if this is done solely for the purpose of statistical enquiry by an outside body." What a swarm of government inspectors this suggests! . . . A FOLLOW-UP of this thought is inspired by the fact that DR. A. C. DICK is one of our current authors (page 81). A

—Continued on page 6.

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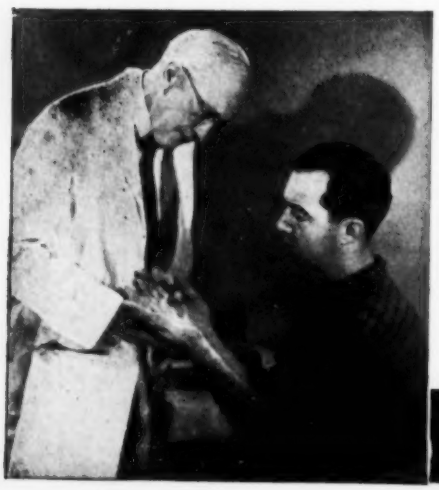
AAIP&S, Constitution and By-Laws.....102
Third War Conference cancelled.....106
Absence: certified, and report.....138
record card, form.....152
recording system 148
Absenteeism: national problem.....158
significance, report 142
Accident, summary, report.....136
Allen, M. G. (author)..... 94
Alloys, report 142
AMA, Industrial Health Congress cancelled. 10
Analysis, medical job..... 162
Audit, of absenteeism..... 163
Automatic Telephone & Electric Co. Ltd...133
Average intelligence 104
Awards in nursing education..... 16
Basis, in job placement..... 85
Benzyl alcohol, report..... 142
Book review: "Medical Uses of Soap".... 98
California Industrial Nurse Section.....167
Carbon tetrachloride: plant for sale..... 22
report 142
Carleton, Dr. E. H., symptom analysis.... 8
Carter, Captain T. J., (MC), (author)...100
Casts, discussion 124
Causes of disability, statistics..... 96
Certification, for absences.....146
Certified sickness, report.....138
Classifications, industrial nursing.....167
Cleanliness, invitation to..... 98
Clinical work, survey, report.....140
Colds: and drafts..... 30
and low incomes (This Month)..... 6
Colles' fractures, treatment.....126
Colorado, health activities..... 46
Commendation, value of..... 38
Company domination, physicians..... 28
Compound fractures, discussion.....124
Congress, Industrial Health, cancelled..... 10
Connecticut: conference 32
health activities 46
Consolidated Vultee's experience..... 81
Constitution and By-Laws, AAIP&S.....102
Contact dermatitis, nature and types..... 88
Contract practice, industrial..... 36
Cubbins, Dr. William R., discussion.....120
Definitions, industrial nursing.....167
Dermatitis, practical approach..... 88
Diagnosis, of dermatitis..... 89
Dick, Dr. A. C., reference to article..... 6
(author) 81
Diehr, Dr. A. H., discussion.....120
Disability and death rates, statistics..... 97
Disability: cases, statistics..... 95
days, in 1943, Standard Oil, N. J..... 95
Dobbins, Dr. Thomas, award..... 10
Drafts and colds..... 30
Education, standards, urged.....108
Employee questionnaire 18
Employees, lack of interest..... 36
Employee's lateness record.....150
Employer and employee.....144
Epilepsy, incidence 22
Excretion, of penicillin.....119
Eyesight conservation, union program..... 87
Fatigue 28
Femur, fractures, discussion.....132
First aid room.....138
Fixation, fracture, panel discussion.....120
Follow-up, ex-service men..... 91
Foreman's leave slip.....150
Forms, absenteeism records..... 150
Fractures, fixation, panel discussion.....120
Frequency rates, disability..... 96
Function: of industrial nurses.....165
of journalism 3
Future, of industrial medicine.....102
Gas gangrene, penicillin.....119
Groth, E. H. (author)..... 91
Group problems, specific..... 44
Hanging casts 132
Health and vacation fund..... 18
Health hazards, determining.....159
Health Institute, UAW-CIO..... 12
Health officer, qualifications, duties..... 48
Health program, report..... 22
Health record, in U. S..... 44
Health survey, report.....134
Healthy industry 133
Hoffman-LaRoche medical care plan.....104
Hydrocarbon habit 164
Hygiene, importance of soap in.....100
Industrial, contract practice..... 36
Industrial health, teaching..... 25
Industrial Health Committee, U. of M..... 20
Industrial hygiene, first concern..... 44
Labor Department, in, activities.....106
Industrial medicine, in England.....133
Industrial nurse, responsibility.....165
Industrial nursing course, Columbia..... 12
Industrial physician, qualifications.....162
Intelligence, average 104
Interview, in re-employment..... 92
Intravenous drip, penicillin 119
Iowa, health department activities..... 46
Job: descriptions, nursing.....167
placement, Consolidated Vultee..... 81
survey, of physical factors..... 82
training, in re-employment..... 93
Labor cooperation, medical welfare.....156
Department, in hygiene activities.....106
Large industries, nursing.....167
Lewin, Lt. Col. Philip, discussion.....120
Liaison agency, by industrial medicine....108
Limitations, and freedom..... 30
Low back injuries 54
Lung, "a spot on".....171
Malaria, Standard Oil, N. J..... 97
Medical accident summary.....134
Medical certificates, health conditions.....159
Medical job analysis.....162
Medical officer, view of absenteeism.....158
Medical uses of soap, book review..... 98
Medical welfare, labor cooperation.....156
Medicine, still an art..... 34
Medium-sized industries, nursing.....167
Methods, in job placement..... 85
Minority decision, APHA..... 22
Moore, Mildred, R.N. (author).....165
Needs, of industrial medicine.....100
New Jersey, Bureau of Industrial Health.. 46
Non-industrial disability 96
Nursing education, awards in..... 16
Nutrition in industry..... 52
Occupational: disease hazards.....164
hazards, New York..... 50
Opinions, employees' 18
Oregon, big stick in..... 38
Patch tests, values, limitations..... 89
Penicillin, intravenous drip..... 119
Pennsylvania, health department..... 46
Petrie, Dr. Lester M. (author).....159
Philosophy, of job placement..... 85
Physical examinations, Consolidated Vultee. 81
Physician: in employer-employee relation..144
salary, note 22
Pinner, Dr. Max (author).....171
Pinning, of fractures.....126
Placement,: ex-servicemen 91
program, Consolidated Vultee..... 81
Pregnancy cases 84
Prevention, practical approach..... 89
Price, Dr. Leo (author)..... 87
Priest, Dr. Walter S. (author).....110
Primary irritants, dermatitis..... 90
Problems, in pre-placement..... 82
Protective measures, Consolidated Vultee.. 81
Psychological well-being 28
Psychosomatic medicine 54
Qualifications, industrial nursing.....167
Recognition, by top management.....108
Recording system, for absences.....148
Redden, Dr. William Rufus (author)..... 98
Re-employment, ex-service men..... 91
Re-examination procedures 83
Rehabilitation committee NRC..... 16
Rejections, permanent, temporary..... 82
Safety Education 104
Sensitizers, dermatitis prevention..... 90
Septic cases, relation to accidents.....136
Shaving, therapeutic 99
Sickness: absenteeism, report.....146
certified, report 138
Slobe, Dr. F. W., panel chairman.....120
Small industries, nursing.....167
Soap, in preventive medicine..... 99
Stability, of penicillin.....120
Standard Oil, New Jersey, statistics..... 94
Standards of industrial practice.....108
Statistical researches, report.....146
Suggested plans, nursing.....166
Symbols, reporting, records.....153
Synthetic insulating material, report.....142
Syphilis, industrial, political.....105
Syton, and fabrics.....105
Tabershaw, Dr. Irving R., to Alabama... 8
Teaching industrial health..... 25
Telephone employees' plan, Oregon..... 38
Thiamine synthesis 48
Toxicological investigations, report.....142
Transverse fractures, femur.....132
Uncertified absence, report.....140
Union Health Home..... 20
Union health plan, ILGWU..... 87
Unions, health institute, safety panel..... 14
"Unsolved fracture," discussion.....120
Varnish, adhesive, report.....142
Venereal, soap prophylaxis.....100
Veterans Administration, critique..... 18
Vitamin deficiencies 104
War Conferences, Third, cancelled.....106
Wartime employment, England.....148
Washington, health department..... 48
Wellmerling, Dr. H. W., discussion.....120
Wage standards, nurses.....167
Workers: classification 160
what they think..... 22
X-rays, after absence..... 84
industrial, Pennsylvania 16
Zinc ague, report.....142



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RESEARCH IN THE SERVICE OF MEDICINE

—*Continued from page 3.*

recent survey on the common cold (Gallup poll) confirms certain conclusions "based upon many earlier studies of this subject." One of these conclusions, among the five which are listed as "chief," is that "people with low incomes have more colds than people with higher incomes." Statements of this kind are savory fodder for the protagonists of government medicine. In respect of this statement they will, of course, wax eloquent on the special and particular needs of the "people with low incomes"—missing, by intention, the obvious implications of the terms in which the conclusion is expressed. In other words, they will insist on treating the colds rather than raising the incomes. This might imply that there is something wrong with the logic of the whole proposition of government medical care. There is, in that the intendments to treat the symptoms to the exclusion of the causes are so pronounced that there is little or no provision for the *health education* that will aim at prevention of the causes. The purpose is not the much needed long-range education to make the nation well and keep it so; there would be no percentage in that, for, in all candor, it must be admitted that the terrific concern in high places for the care of the sick in the lowly places is (in poetic paraphrase) "but one part ills and ever three parts votes." Now, getting back to DR. DICK. In his "Plan for Medical Care," in INDUSTRIAL MEDICINE (13:8, p. 595) August, 1944, he stated that "Thirty years' experience in England under a panel system of medicine shows that giving free medical care to this group (low income) does not result in health improvement," and that the family level of health "does not rise with increased income or increased expenditures for any single component of health after income reaches" a certain level. Health education as a primary purpose is not in the picture. No more is it in the situation which is the subject of the editorial (page 106). . . . THE ITEM entitled "Company Domination" (page 28) is from an essay in which one Alfred McClung Lee, Ph.D., in high language, takes the medical profession to task for its alleged lack of social consciousness while, at the same time, somewhat praising its professional standards. The praise, however, is subtly tempered by certain little digs —"the unfairness of 'company' doctors to employees;" "company domination of physicians," and the like. These are literally dragged into the context. The author is Professor of the Department of Sociology at Wayne University; was formerly executive director, Institute for Propaganda Analysis. He obviously intends his readers to get the idea that industrial medicine, on the whole, is a blot on the bright 'scutcheon of the social dream. Maybe this is one of the opening guns of the ancient—and, we hoped, outworn—"smear technique." As Al Smith used to say: "Let's look at the record!" . . . DR. A. FLETCHER HALL, whose "Practical Approach to the Industrial Dermatitis Problem" appears on page 88, had an article, on "Occupational Contact Dermatitis among Aircraft Workers" in *J.A.M.A.*, May 20, 1944. . . . WE ARE constantly hearing of the majority percentage of dermatitis in occupational disease statistics, and constantly reading of the importance of cleanliness as a means of majority prevention. Cleanliness is synonymous with soap; and thus the logic of DR. REDDEN'S review of the new book "Medical Uses of Soap" (page 98) as a feature article is irresistible. Paraphrasing a Victorian poet: "Cleanse me from earthly soil and scath—and not one taint remains of skin or blood". . . . DR. CARTER'S listing of the requirements and duties of the health officer in Indiana (page 48) discloses a situ-

—*Continued on page 172.*

Alkalol Company, The 159
Alkalol
Aloe, A. S., Company 36
Blair-Brown Skin-Grafting Knife
American Optical Company 115
Safety Goggles
Ames Company, Inc. 58
Clinitest Urine-Sugar Analysis Set
Anglo-French Laboratories, Inc. 12
Hepvise
Becton, Dickinson & Co. 28
Hypodermic Needles and Syringes
Breck, John H., Inc. 139
Hand Cleaner; Water Resistant Cream
Breon, George A., & Company 30
Liver-Breon
Bristol-Myers Company 147
Sal-Hepatica
Bristol-Myers Company 157
Trushay
Burdick Corporation, The 59
Short Wave Diathermy Unit
Burroughs Wellcome & Co., Inc. 24
Tabloid 'Empirin' Compound
Burroughs Wellcome & Co., Inc. 113
Benzyl Benzoate Emulsion
Cambridge Instrument Company, Inc. 34
All-Electric Electrocardiograph
Camp, S. H., & Company 127
Anatomical Supports
Carbisulphoil Company 51
Foille
Cavendish Pharmaceutical Corp. 56
Thi-Fer-Heptum Capsules
Ciba Pharmaceutical Products, Inc. 108
Nupercainal
Ciba Pharmaceutical Products, Inc. ..... 4th Cover
Trasentine-Phenobarbital
Clapp, Otis, & Son, Inc. 7
Obtundia
Columbia University 160
Symposium on Industrial Medicine
Crookes Laboratories, Inc. 110
Enzo-Cal
Denver Chemical Manufacturing Company, The 48
Acetone Test (Denco); Galatest
Denver Chemical Mfg. Co., The 54
Antiphlogistine
Desitin Chemical Company 52
Desitin Ointment and Powder
Dixie Cup Company 32
Dixie Cups
Dolge, C. B., Company, The 4
Handeez; Prevento; Dolcogards
Dome Chemicals, Inc. 163
Domeboro Tabs; Daxalan; Domolene
Drug Products Co., Inc., The 46
Neo-Sulfarea
Du Pont Company 39
Patterson Fluoroscopic Screens
Du Pont Company 121
Pro-Tek; Pro-Tek No. 2
General Cellulose Co., Inc., The 160
Fibredown Sanitary Sheeting
General Electric X-Ray Corporation 107
G-E Photo-roentgenographic Equipment
Health Cigar Co., Inc. 14
Sano Cigarettes
Hollings-Smith Co. 143
Bell's Syrup of Codeine
Hotel Philadelphian 162
(Philadelphia)
Hynson, Westcott & Dunning, Inc. 116
Mercurochrome
Ille Electric Corporation 162
Ille Portable Hydromassage Unit
Industrial Medicine Book Company 22
"The Mind of the Injured Man"
Iodine Educational Bureau, Inc. 114
Iodine
Irwin, Neisler & Co. 137
Osmopak
Johnson & Johnson 1
Steri-Pads
Kny-Scheerer Corporation 21
Surgical Instruments
Kolar Laboratories, Inc. 25
Protective Cream; Skin Cleanser
Leeming, Thos., & Co. 44
Baume Benaue
Lever Brothers Company 55
Vimms Industrial Plan
Lily-Tulip Cup Corp. 171
Paper Cups and Food Containers
Machlett Laboratories, Inc. 23
X-Ray Tubes
McNeil Laboratories, Incorporated ..... 2nd Cover
Tablets Aspirocal Comp.
Merck & Co., Inc. 47
Erythrol Tetranitrate
Merrell, The Wm. S., Company 10
Oravax
Merrell, The Wm. S., Company 13
Pan-Concemin Tablets
Mine Safety Appliances Co. 11
Fend
National Confectioners' Association 145
Niacin Content of Candies
National Oil Products Co. 16
Acidolate
New York Medical Exchange 50
Medical Employment
Numotizine, Inc. 18
Numotizine
Nutrition Research Laboratories 42, 43
Ertron
Occy-Crystine Laboratory 22
Occy-Crystine
Parke, Davis & Company 15
Kapseals Abdec
Parker, White & Heyl, Inc. 117
Bard-Parker Formaldehyde Germicide
Patch, The E. L., Company 20
Gadoment
Penathol Laboratories 29
Penathol
Picker X-Ray Corporation 2
"Century" X-Ray Unit
Pineoleum Company, The 40
Pineoleum
Potter Drug & Chemical Corp. 135
Cuticura Soap and Ointment
Powers X-Ray Service 123
Powers Radiographs
Progressive Laboratory Specialties Company 50
Klo-Saver Aprons
Propper Manufacturing Co. 20
Propper Brand Michel Wound Clips
Reed & Carnrick 35
Estrogenic Hormones
Reynolds, R. J., Tobacco Company 149
Camel Cigarettes
Riedel-de Haen, Inc. 38
Decholin
Sacro-Iliac Belt Co. 132
Sacro-Iliac Belts
Schering Corporation 9
Progynon
Searle, G. D., & Co. 5
Floraquin
Serutan, Professional Service Division ..... 3rd Cover
Serutan
Sharp & Dohme 49
Tyrothricin Concentrate
Sharp & Dohme 131
B. F. I. Powder
Shield Laboratories 141
Riasol
Singer Sewing Machine Company 53
Surgical Stitching Instrument
Sperti, Inc. 57
Bio-Dyne Ointment
Squibb, E. R., & Sons 60
Special Vitamin Formula
Stearns, Frederick, & Company 17
Neo-Synephrine; Sulfathiazolate
Stepan Chemical Co., The 31
pH6 Skin Cleanser
Treasury Department, U. S. 118
U. S. War Bonds
United States 161
War Message
United States Safety Service Co. 56
"Pep-Up" Salt Tablets
Wallace & Tiernan Products, Incorporated 41
Desenex
Warner, William R., & Company, Inc. 19
Anusol
West Disinfecting Company 26, 27
West Protective Creams
White Laboratories, Inc. 33
Otomide
White Laboratories, Inc. 37
Vitamin A and D Ointment
Willson Products, Incorporated 112
Willson MonoGoggle
Wilmot Castle Company 125
Castle Sterilizers and Lights
Winthrop Chemical Company, Inc. 45
Torantil
Wyeth Incorporated 129
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DR. C. B. DAVIS, JR., Medical Examiner, North Carolina Shipbuilding Company, has resigned to become Director, Division of Industrial Hygiene, North Carolina State Board of Health, succeeding DR. T. E. VESTAL who will head the Tuberculosis Control Division of the State Board.

DR. IRVING R. TABERSHAW, Surgeon (R), USPHS, assigned to the Massachusetts Division of Occupational Hygiene for the past three years, has been assigned to the Alabama Department of Public Health to serve as Director of the Division of Industrial Hygiene.

DR. WM. D. MCNALLY, author of "Toxicology," and DR. MANDEL HOROWITZ, describe "A Case of Phenobarbital Poisoning," in *Illinois Med. J.*, December, 1944.

THE Division of Industrial Hygiene in Manitoba, of which DR. HUGH MALCOMSON is director, has received support from the Rockefeller Foundation for study of manufacturing methods and related industrial diseases.

—*Industrial Hygiene News Letter*, November, 1944.

DR. E. H. CARLETON, medical director, Inland Steel Company, has compiled from all available sources a list describing the symptoms and after effects of 55 different ailments encountered in 207 regions throughout the world, to aid Inland physicians in assisting stricken soldiers to return to health and employment. In some cases, DR. CARLETON said, veterans are not ill when they return but may be stricken later. "Most of the diseases rarely would be encountered by the physician in the course of ordinary practice which makes the Inland analysis of particular value to a doctor examining and caring for veterans in industry who have been exposed to alien ailments."

—*Chicago Tribune*, January 15, 1945.

DR. CARL PETERSON, secretary of the Council on Industrial Health of the A.M.A., was a witness at hearings in Washington conducted by a sub-committee of the House Committee on Civil Service. The bill under consideration, H.R. 4909, proposes to make available to Federal government employees the kind of medical service found generally advantageous to private industry. DR. PETERSON presented the views of the medical profession on the essential elements of good industrial health service.

—*Ohio State Med. J.*, January, 1945.

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DR. LEVERETT D. BRISTOL has resigned as executive director of the Hospital Council of Greater New York because of ill health. Prior to his appointment to this position he was health director of the American Telephone and Telegraph Company.

DR. THOMAS DOBBINS, Servel's medical and safety director, (Evansville, Indiana), has been awarded a Certificate of Merit for his part in the conservation of manpower as it relates to war industries. This Certificate was presented by Madam Frances Perkins, U. S. Secretary of Labor. "I wish to express my personal appreciation for your contribution to a prospect that has been a potent aid in getting more arms and equipment to the fighting fronts," said Mrs. Perkins. "While the acceleration of production resulting from a reduction of industrial casualties cannot be computed accurately, unquestionably it is measurable in terms of many thousand tons of essential material and supplies." DR. DOBBINS, as a special agent for the Department of Labor in aiding in the reduction of lost-time accidents, has been a great force in planning for Servel's wonderful safety record.
—*Servel Inklings*, January 26, 1945.

THE Council on Industrial Health of the American Medical Association regrets to announce that the Seventh Annual Congress on Industrial Health, scheduled to convene February 13-15, will not be held. This action is taken in compliance with a request received from the Office of Defense Transportation.

TOO LATE for more than a note of regret in this issue, word comes of the death, at 70, of DR. IRVING S. CUTTER, C. & N. W. Medical Director, *Chicago Tribune* Health Editor, and a firm friend of industrial medicine.

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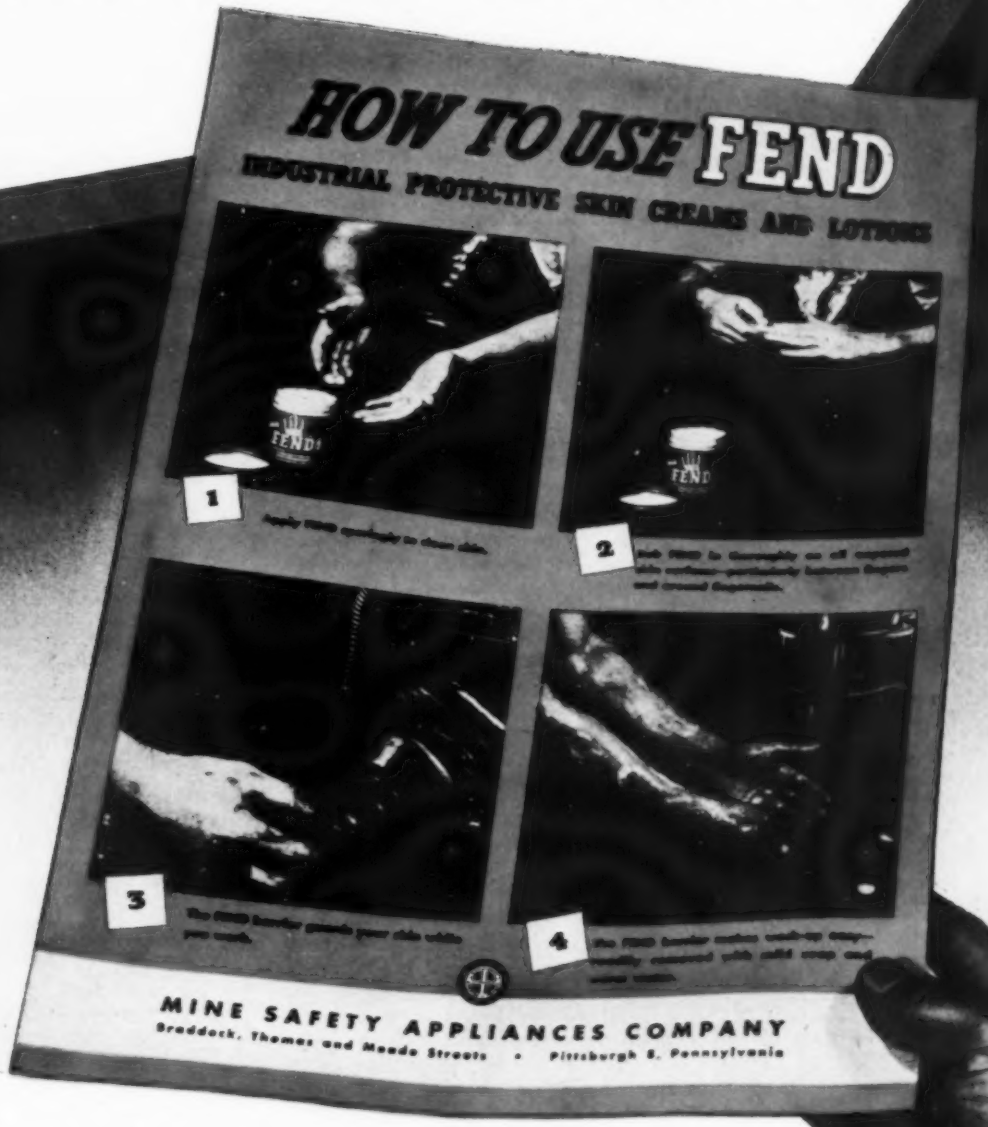

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GENERAL

BRITISH Information Services have medical and health films available, either on a rental or purchase basis. The newest, "Back to Normal," is a graphic account of the return to normal life of men, women and children who, as war casualties, have lost limbs. Men with new artificial limbs are shown working at highly skilled trades with speed and efficiency. Other films: "Psychiatry in Action"—"Men in Danger"—"Life Begins Again"—"Health in War"—"No Accidents"—"Rat Destruction." For information about the films and terms of sale or loan, apply to the British Information Services.

—Northern California Union Health Committee's *Newsletter*, 2:1, January 3, 1945.

Industrial Nursing Course

AN ADVANCED course in industrial nursing for those wishing to qualify as supervisors and consultants is to be given by the Division of Nursing Education, Teachers College, Columbia University, New York, during the Spring Session, beginning February 1, 1945. Students who register for the whole course will be expected to give their entire time to it for the semester. Sections of the course may be taken by part-time students. Leaders in industrial medicine, engineering, dentistry, law, management, labor, personnel administration and other related fields will orient the students to the problems in each field and the ways in which nurses may cooperate and contribute. The social forces affecting the health of the worker and the nurse's own work will be studied.

—*Industrial Hygiene News Letter*, November, 1944.

Health Institute

THE Health Institute, established by UAW-CIO at Detroit limits its service to diagnosis. For treatment, workers are referred back to their own physicians or to the company, in case of industrial accidents. In this respect it is unlike either the Henry J. Kaiser Permanente Foundation, or the Health Center of the International Ladies' Garment Workers' Union in New York City. The institute is financed by local unions which make per capita contributions, ranging from three-fourths, to one-and-one-half cents per member per month. Non-sub-

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scribing auto unions including AFL affiliates, are eligible to use the institute on a fee basis. It is reported that plans are on foot to invite such unions to participate on a per capita basis. No plans are reported to have been made, as yet, to provide medical or hospital service; but officials have pointed out that the three-acre estate of Edsel Ford, just purchased at a cost of $51,000, would be an ideal site for a hospital.

—*Minnesota Med.*, December, 1944.

Health and Safety Panel

THE SECOND Annual UAW-CIO Educational Conference at Milwaukee, Wisconsin, January 5, 6, 7, 1945, included a panel session on Health and Safety, under the leadership of MORRIS RASKIN, M.D., Director, Medical Research Institute, and

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Committee Chairman, and MR. MCCORMICK, Session Chairman, Director of Education for the East Side Detroit Tool & Die-Makers Local. Also on the panel were GRIFFITH JONES, Labor Relations Representative, Industrial Health and Safety Section, War Production Board; BENJAMIN MARCUS, Attorney; CARL PETERSON, M.D., Secretary A.M.A. Council on Industrial Health; JOSEPH SESTO, JR., Service Supervisor, Industrial Welfare Department, Zurich Insurance Companies; and GEORGE S. THOMPSON, Field Representative, U. S. Department of Labor. In addition to answering the questions of the delegates, brief discussions were presented by the panel members: MR. JONES and MR. THOMPSON outlining the programs of their respective governmental departments; MR. MARCUS, the legal aspects; DR. PETERSON reviewing the AMA physical examination program developed in conjunction with organized labor, management and governmental groups; and MR. SESTO presenting the Safety Zone Program including a representative sound strip film. This was the first program to include a Health and Safety panel. Reaction was that much practical and sound direction had been afforded the delegates for the development within their locals of educational programs on the important matters of health and safety.

Awards in Nursing Education

WITH awards totaling $1500, the McGraw-Hill Book Company is announcing a contest for the most outstanding three manuscripts submitted on nursing subjects before March 15, 1946. First choice will receive $1000, second choice $400, third choice $100. John S. Crossman, manager and editor of the Health Education Department of the company, says that in offering these awards the company intends to emphasize the importance of authorship in conjunction with other nursing pursuits, and to reward those who, in these trying times, record their experiences for the benefit of themselves and others. The contest is open to any nurse in any country, and persons in other professional fields are encouraged to participate, but manuscripts must be written in English and on nursing subjects. Manuscripts submitted for an award should be publishable in book form as texts or reference works, and should contain not less than 50,000 words. Complete details may be obtained by writing to the Health Education Department of the McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 18.

Industrial Health X-Rays

A MAJOR feature of the Pennsylvania Tuberculosis Society program of the year was stimulation and promotion of active attention to the problem of tuberculosis in industry," according to the annual report of Arthur M. Dewees, Executive Secretary, presented at the fifty-second annual meeting in Harrisburg. "The objective has been the x-ray examination of workers and provision in industrial health services for constant and effective care regarding tuberculosis. Well above 100,000 persons have had chest x-rays in surveys conducted by voluntary tuberculosis organizations in Pennsylvania."

—*Wilkes-Barre Courier-Herald*, January 4, 1945.

Rehabilitation Committee

THE Division of Engineering and Industrial Research of the National Research Council has appointed a subcommittee to formulate a program for the Council to undertake, in regard to the industrial rehabilitation of service men and war industry workers. Members of the subcommittee are: Chairman, PROFESSOR ELTON MAYO, Graduate School of Business Administration, Harvard University; DR. CLARENCE SELBY, Medical Consultant, General Motors Corporation; DR. J. G. TOWNSEND, Medical Director, Industrial Hygiene Division, U. S. Public Health Service. This subcommittee has had one meeting in New York, and a second meeting in Detroit. The object of the Detroit meeting was to evaluate in as many plants as possible the methods of industrial rehabilitation now being proposed or actually carried out. The subcommittee will first apprise the Division of Engineering and Industrial Research as to the various plans now contemplated or in operation. At the time of the Detroit meeting, the following were visited: Cadillac Motor Company, Chrysler Corporation, Ford Motor Company plants at River Rouge and Willow Run, AC Spark Plug Division of General Motors Corporation, Flint, Michigan, and officials of General Motors in Detroit and Flint.

—*Industrial Hygiene News Letter*, November, 1944.

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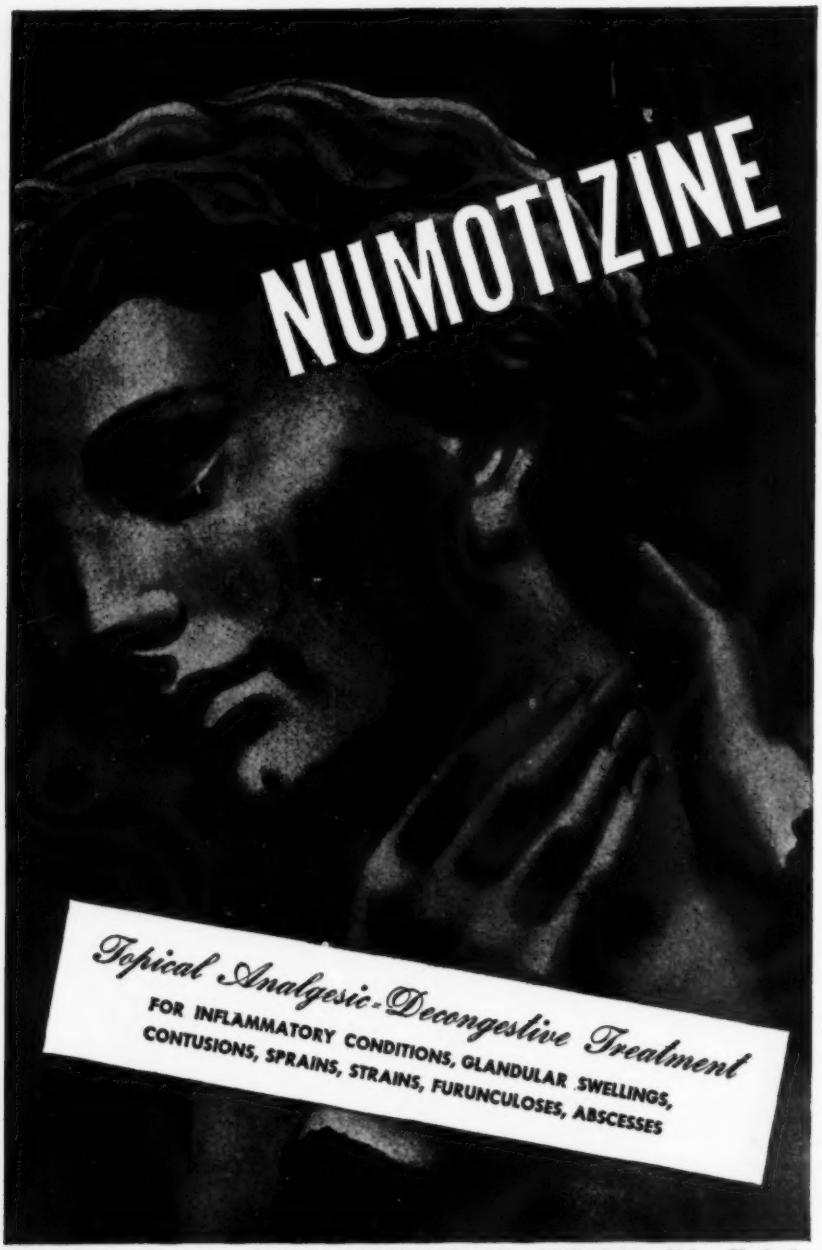

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Health and Vacation Fund

WITH $2,924,000 collected since May, a health and vacation fund for 80,000 dressmakers in New York and vicinity began operation January 3 with an eye examination given to 150 employees of the Apex Dress Company by physicians and assistants from the union health center. All workers will receive examinations in the 2,215 shops of the industry. Workers with defective vision will be referred to the health center for further medical treatment, and corrective treatment and eyeglasses will be furnished free of charge. The eye program will be a part of the health conservation and sickness benefit plan established under the health fund. The *New York Times* reports that hospitalization, medical service, illness disability benefits and aid to workers suffering from tuberculosis are to be developed. With the health program will be combined free vacations with payments of $23 to $38 to cover a week away from work. The fund was created eight months ago in the collective agreement between the dressmakers' union and the four employer associations in the industry.

—*J.A.M.A.*, January 27, 1945.

Merit First

FREDERICK C. CRAWFORD, president of Thompson Products, a former president of the National Manufacturers' Association, a genuine American liberal as distinct from the socialistic vodka-and-borsch breed of "liberal," submitted a questionnaire to the more than 15,000 employees of the Thompson plant with the invitation "to be frank in answering the questions." In a word, he looks on his men as "associates," as partners in give-and-take opinions around the board. "We led with our chin," says MR. CRAWFORD, "and the results were highly gratifying." All the replies were unsigned—a secret ballot, so to speak, which is, again, an American—or at least an Anglo-Saxon—idea. To the series of questions these sample answers give us a look into the working of the mind of the average American worker today: "Let each man stand on MERIT REGARDLESS OF SENIORITY." "Hold every worker responsible for a full day's work." "Give three days' notice of schedule changes." Sixty per cent of those answering the questionnaire said they liked their job, 24% thought it "okay," 12% "okay for the war." Only 4% preferred to work elsewhere.

—From "Postwar Planning," by BENJAMIN DE CASSERES, in *Chicago Herald-American*, January 29, 1945.

The Shape of Things to Come

A DIGEST of Albert Deutch's "Dilemma in Veterans' Administration," published in the *St. Louis Star-Times*, January 10, 1944. Mr. Deutch, a layman, has made an extensive study of the workings of the Veteran Administration and has come to some definite and interesting conclusions. He states that it is the biggest Life Insurance Company in the world and the world's largest Medical Care System with the possible exception of the Soviet Union. The defects, in his mind, may be traceable to faulty and inadequate legislation, administrative flaws, and to a combination of both. The following are the pertinent factors in the present administration of the veteran affairs. We quote: "(1) Dollar-honest but incompetent executives. (2) A colossal bureaucracy—tremendously expanded by the G. I. Bill of Rights and other recent veteran legislation—stricken with creeping paralysis in the face of a monumental task. (3) The tangling of human destiny in an excessive mass of red tape. (4) A traditionally isolationist attitude within the Veterans' Administration that has hampered cooperation with other agencies, fostered an unhealthy separation between veterans and non-veterans, and kept veterans' institutions physically, socially and scientifically removed from community life. (5) A medieval attitude toward medicine which discourages good doctors from going into Veterans' Administration facilities, accepts new curative drugs and devices belatedly and reluctantly, puts a damper on medical research that keeps a medical staff alert and advanced, and checks mutually helpful cooperation with medical groups and facilities outside the veteran field. (6) Undue kow-towing to politicians and veteran pressure organizations in making appointments, thus diluting the quality of personnel and resulting in lower standards of care and treatment. (7) Sloppy methods of pension rating, especially in the case of psychoneurotics, which breeds a disease known to medical men as 'compensationitis,' 'pensionitis,' or 'pension neurosis.' (8) Extravagant waste of badly-needed medical skills by re-

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quiring VA doctors to spend much of their time in paper work that should be done by clerical aids, thus freeing physicians for active therapeutic work on veterans. (9) Excessive stress on the money side of veteran help—pension rating, insurance, etc.—to the detriment of medical and other rehabilitative efforts." This is a sample of how socialized medicine probably would be administered. Let us redouble our efforts in the prevention of regimentation and bureaucratic rule in America.

—Editorial by EAGY, in *Weekly Bulletin of the St. Louis Medical Society*, January 26, 1945.

Industrial Health Committee

THE University of Minnesota Medical School, Minneapolis, has announced its plan to create an industrial health and efficiency committee to assemble and coordinate the activities of the school in industrial medicine and to devise ways and means of making immediately available to industry discoveries and developments in this field. At a recent meeting at which DR. HAROLD S. DIEHL, dean of medical sciences at Minnesota, announced plans for the Mayo Memorial, consideration was given to the relationship and value of the memorial to the industries of the state, this point having been discussed at a previous meeting of the committee of founders of the memorial. The creation of the industrial health and efficiency committee was believed the best step in developing a coordinated program at the university to ensure a comprehensive and well regulated development of research teaching programs and other matters incidental to industrial health and medicine. It was proposed that the committee consist of the heads of the departments of the school of medicine most immediately concerned with the program.

Union Health Home

THE new $120,000 UAW-CIO Health Institute in the remodeled Edsel Ford home, 7930 E. Jefferson, was opened to the public January 18. Attending the ceremonies were Dr. Thomas Parran, Surgeon General of the U. S.; R. J. Thomas, UAW president; George F. Addes, UAW secretary-treasurer; Walter P. Reuther, UAW vice president, and other high ranking UAW officials. The Ford home, which was purchased in April, 1944, for $50,000, has been remodeled at a cost of $45,000 and new equipment costing $25,000 has been added. The institute program as outlined by Addes includes examinations for all workers with industrial health problems; group examinations from shops to aid in the discovery and prevention of industrial health hazards and the establishment of health and safety committees; health education for every worker and a personal service offering professional advice to workers with personal problems which affect their work and relationship with other people. Dr. Morris Raskin, who has been closely associated with the union for several years, has been appointed director of the institute, and Leslie Anderson, assistant to Addes, as director of the health and accident department.

—*Detroit Times*, January 18, 1945.

"Punch Lines"

HARVEY S. FIRESTONE, JR.: "Someone has said that 85% of postwar planning constitutes planning how to get into the other man's business". . . . WILLIAM E. HOLLER: "Only millions of orders can make millions of jobs". . . . SIR WILLIAM BEVERIDGE: "A time of revolution in human history is a time for resolution and not for tinkering". . . . DR. VICTOR G. HEISER: "I have been across the length and breadth of this country; I have interviewed industrialists in practically every state of the Union, and I have yet to find one that was not in favor of medical service". . . . GENERAL DWIGHT EISENHOWER: "Don't worry about the morale of American troops. Just back them up". . . . SURGEON GENERAL THOMAS PARRAN: "Medical science today is extraordinarily complex. The provision of adequate health care involves a great deal more than paying doctors' bills, basic as that is". . . .

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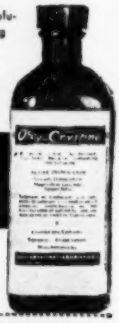

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THE MIND OF THE INJURED MAN

A Study of Trauma and the Nervous System, with Particular Reference to Neuroses Associated with Injury

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COMMENT and OPINION

THE *Los Angeles Examiner* recently carried this advertisement —"Carbon-Tetrachloride plant for sale. Good business, modern machinery. Reason—owner ill."

—*Industrial Hygiene News Letter*, November, 1944.

ALTHOUGH somewhat interested in industrial medicine, we never knew what a large percentage of the public's health was affected by war until the War Manpower rules went into force. It seems that every other patient wants a release from his present job.

—"Highlight," in *Detroit Medical News*, January 8, 1945.

UNDER "Urgent Need for a Physician" in the December 27, 1944, issue it was stated " a war industry will pay him $125.00 to $150.00 per month for twenty-four hours daily work." This should read "for two (2) hours work." Excuse us please!

—"Correction, Please," in *Weekly Bulletin of the St. Louis Medical Society*, January 9, 1945.

THE incidence and economic importance of epilepsy, which has been estimated to afflict one-half million Americans at a cost of at least $100,000,000 annually, are not appreciated by many physicians Modern medical management of epilepsy, including use of the anticonvulsants Dilantin and Glutamic Acid, makes it possible to control seizures in 80% of cases of this disease.

—*Therapeutic Notes* (Parke, Davis & Company), December, 1944.

Health Program Report

TWENTY-NINE doctors, economists, administrators and representatives of organized labor have announced a new plan to insure good medical care for all Americans. CIO Research Director J. RAYMOND WALSH and FLORENCE C. THORNE, of the AFL Research Department, helped draw it up. The plan proposes a national system of health insurance to which employees, employers and self-employed persons would be required by law to contribute in proportion to earning capacity. Low-income families would be provided for by supplementary taxation. Chief points of difference from the W-M-D Bill; Provision for a decentralized administration, with local units exercising autonomy under national standards; recognition of existing voluntary hospital and health insurance plans; and the determination of policy by groups in which both the public and the medical profession would be represented. The term "medical service" is used to cover hospital care as well as preventive, diagnostic, and treatment services. The report was presented as "a framework for improved national health legislation and for action by non-government bodies," rather than as a bill for congressional action. It was worked out by 13 doctors, staff members of the Rockefeller foundation and the U. S. Public Health Service, eight health insurance economists and eight administrators from government and private agencies, in addition to the labor representatives.

—Northern California Union Health Committees' *Newsletter*, 2:1, January 3, 1945.

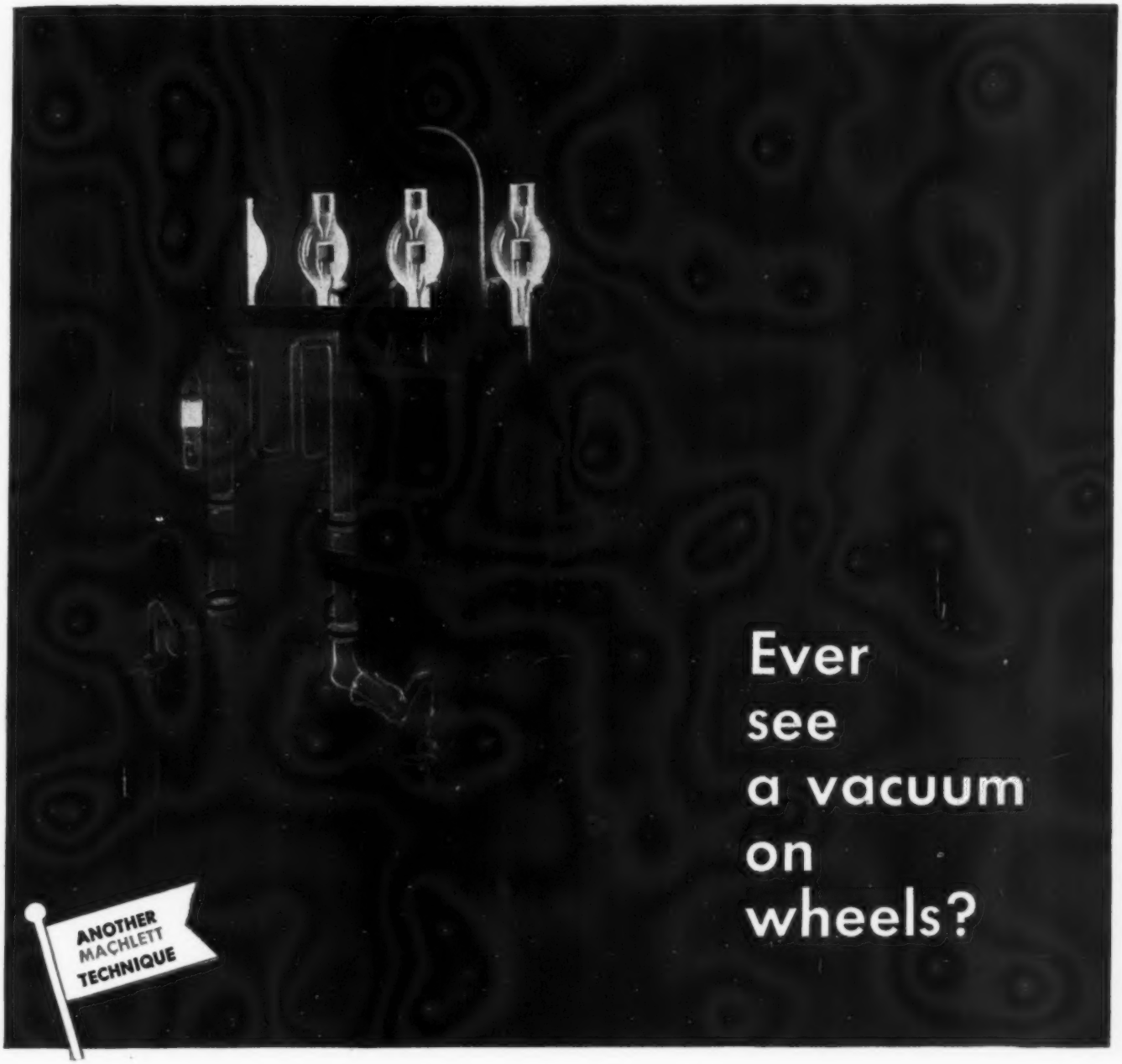
Hasty Action

How a Minority Group Can Commit a National Organization to Policies on Important Issues.—On October 4, in New York, at the annual meeting of the American Public Health Association, its administrative body, the "Governing Council," as represented by 63 out of some 100 eligible members who have power to vote, adopted a resolution by a ballot of 49 in favor of, to 14 against, approving resolutions that are in essence an endorsement of federal legislation that would bring into being compulsory health insurance for the United States. The story of what took place was well covered in editorial and other comment in the *Journal of the American Medical Association* for October 14th, on pages 434 and 441, and is worthy of perusal by physicians who wish to keep themselves informed concerning current trends that may lead to the establishing of a system of political medicine designed to take the place of scientific medical practice as it has been developed in the United States.

—*California & Western Med.*, January, 1945.

What Workers Think

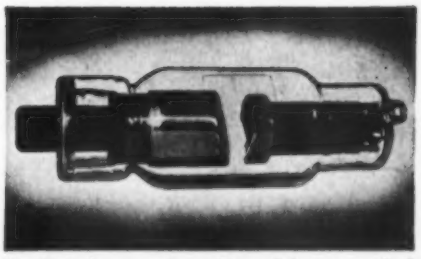
IN *Factory (10:44)* under the heading "What the Factory Worker Really Thinks About Postwar Jobs and Labor Unions," there appears a survey of the attitudes of 17,000,000 wage earners in America's manufacturing industries. This survey was conducted for *Factory* by the Opinion Research Corporation of Princeton, N. J., and resulted in the following conclusions: "(1) The American factory worker foresees considerable unemployment in the years after victory in Europe. (2) He looks primarily to the government to solve the postwar job problem. In this he shows relatively little confidence in industrial management and even less in union leadership. (3) The factory worker is strongly pro-union. In seven cases out of 10 he is a union man. He gives his union leaders a favorable rating. He believes firmly that the worker's best chance of making a good living lies in joining a union. And he credits the unions with gains in wages, working conditions, and job protection. (4) BUT—the



The final stages of manufacture of X-ray and other electronic tubes must include thorough "outgassing" to remove gases held within the metal tube parts, as well as the gas inside the glass envelope. This has customarily been done in three separate operations, and it was considered inevitable for two-thirds of the equipment to be idle while one-third was in operation. Machlett felt that this produced highly undesirable effects on output, costs, and on tube quality.

So we developed a unique production line. The tubes are sealed on a high-vacuum pump which is mounted on a dolly, and thus can be wheeled through each operation, while pumping continues steadily. The dolly goes first to a baking oven (shown above); then to a station in which the tube elements are heated red hot by induction; finally they are bombarded repeatedly at 70,000 volts. This is about 10 times the usual voltage, and not only reduces the time required in a later seasoning process, but assures much better tubes.

The system approximately triples the output of the equipment. That alone was invaluable in meeting tremendous war orders. But we also believe that it produces tubes with less residual gas and hence improved operation and longer life. When buying X-ray tubes for medical, dental, scientific or industrial purposes, or radio tubes for communications or industry, remember this Machlett technique which makes possible the production of the tube shown above . . . Machlett Laboratories, Inc., Springdale, Connecticut.



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worker wants important union reforms. He wants to know where his money goes. And he wants to vote before he strikes. (5) The worker believes a large number of men have been forced to join unions. And he is cool to closed shop and maintenance of membership." In reply to the question put to union workers: "Here is a list of things which the unions might work for in the future. Which two should they try hardest to get?" answers are given below in the order of frequency with which objectives were mentioned:

	% mentioning
Protection of present wage rates	18.5
Guaranteed yearly wages	17.0
Pensions paid by the companies	13.5
Higher wage rates	13.0
Shorter work week	10.0
Better shop conditions	9.5
Medical insurance paid by the companies	8.5
Vacations with pay	7.5
Unable to choose	1.5

This outline indicates the scope of the survey which is obtainable complete from the publishers of *Factory Management and Maintenance*, McGraw-Hill Publishing Company, 330 W. 42nd Street, New York 18.

—*Notes & Quotes*, Connecticut General Life Insurance Company, January, 1945.

Teaching Industrial Health

THOSE who are keeping posted on current trends will agree, no doubt, that industrial health and the general relations developing between medicine, labor and industry are of first rank importance. The subject needs a great deal of consideration by the medical profession. This is especially true with respect to medical education. Medical schools must prepare undergraduates with the basic elements of this phase of medical practice. Progress has been made in bringing this subject into the medical school curriculum, but not enough. A recent survey by the Council on Industrial Health of the A.M.A. shows that the average number of hours of required lectures on industrial health in the medical schools has increased 92% in the period 1939 to 1943 (from slightly more than five hours in 1939 to 9.6 hours in 1943). One school requires 64 lecture hours; some make no provision for teaching this subject. Only a few schools make provision for clinics, demonstrations and bedside teaching. Less than half report having field trips to industry. Ohio's three medical schools need to give this question more attention than at present. The College of Medicine, Ohio State University, requires 11 lecture hours in industrial medicine—above the average for all schools but meager in comparison to some schools. The University of Cincinnati College of Medicine requires eight lecture hours, and Western Reserve University School of Medicine, three lecture hours, plus three hours of

50%
REDUCTION IN DERMATITIS
CASES REPORTED IN 90 DAYS*

*According to a report covering a group of 10,000 workers, over a period of three months. The use of ELEVEN THIRTY-TWO Protective Cream and Foaming Oil Cleanser aided in reducing the number of cases from a high of 50 moderately severe and severe cases a month to a maximum of 25 cases.

Preventing known irritants, such as cutting oils, grease, solvents, inks, and other materials from defatting action of the skin is the curb for dermatitis. Keep irritants from penetrating the skin, and avoid cleansers that contribute to dry skins. A proved, effective method employed in the case cited above includes:

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(2) Cleansing is done with FOAMING OIL SKIN CLEANSER, a sulphonated *vegetable* oil mixed with a wetting agent. It is an efficient cleansing compound that will not defat the skin—rather, it provides additional beneficial oils for the skin to help build up resistance to drying or chapping both on and off the job.

A GUARANTEE—based on your experience. Best proof of the value of these dermatitis preventives is your own experience. You can get this experience at no cost by using the Kolar Laboratories' *trial offer*. We will ship prepaid six one-pound jars of ELEVEN THIRTY-TWO Protective Cream, and (one gallon) of Foaming Oil Cleanser invoicing in the regular manner, but with the distinct understanding that this invoice is not to be paid unless the preparations measure up to your expectations in every way.

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. . . they would ask for that cream formula which was especially developed to give protection against the particular hazard to which they were exposed in your industry. Two, or possibly only one of the entire series of West cream formulas will be all you require . . . If, for example, the hazard was an organic solvent such as kerosene or gasoline, etc., West Protective Cream No. 33 would be best . . . If, on the other hand the hazard were heavy oils and greases, West Protective Cream No. 22 would give more adequate protection . . . The booklet "Production Safeguards Against Dermatitis tabulates most proven skin irritants and the West creams best suited for combatting each specific hazard.

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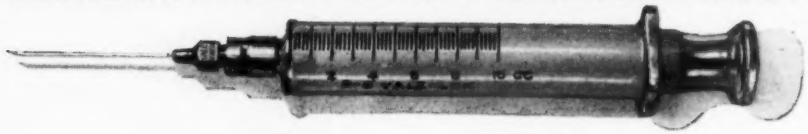

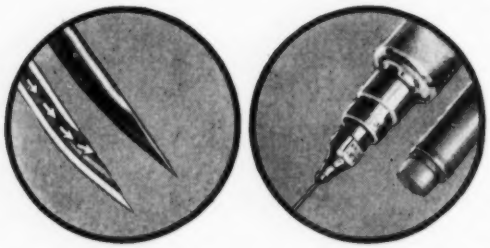

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clinics and demonstrations and two field trips. Correction of deficiencies in the time devoted to teaching industrial health is something which should be taken up by most medical schools as soon as feasible.

—*Ohio State Med. J.*, January, 1945.

Company Domination?

WHAT forms will socialized medicine take? The most obvious answer to that is, some of the forms already taken. Henry Ford and Henry Kaiser have made some interesting experiments in group practice and industrial medicine. Governmental employees with M.D. degrees are giving most marvelous service in the armed forces with never a fee to be considered. Medical insurance schemes under medical auspices have been promoted for a number of years. Group health consumer cooperatives have attracted wide attention among trade union leaders as a way of offsetting company domination of physicians whose salaries are paid, in a rather direct fashion, by the employees and not the employers.

—From "The Social Dynamics of the Physician's Status," by ALFRED MCCLUNG LEE, in *Psychiatry*, November, 1944.

Psychological Well-Being

TWELVE steps: (1) Wider public knowledge and understanding of nature of mental health. (2) School classes and activities to meet the needs of children's unfolding personalities. (3) Special training in the principles of personality development and behavior for doctors, lawyers, nurses, probation officers, social workers, teachers, parents. (4) A mental hygiene program in the State Department of Public Health, particularly in county health departments. (5) Extension of mental hygiene programs in other state departments. (6) More nursery schools designed to start two- to five-year-olds in healthy, happy ways of living and to serve as centers for parent education. (7) Improved laws for admission of patients to state hospitals. (8) Adequate appropriations to state hospitals for modern methods and trained personnel. (9) Mental health clinics throughout the state for children and adults. (10) Adequate mental hygiene services for servicemen and women in each community. (11) Provision in local hospitals for immediate short-term treatment of mentally upset persons. (12) Clinics and hospitals to study and treat alcoholics.

—From *Beacon Briefs* (No. 1), published by Mental Hygiene Society of Northern California.

Trick Question

WHAT is the color of the emulsion on an unexposed photographic plate?" The answer is that we cannot know it and that it will never be experimentally checked, declares a Parisian scientist and philosopher who takes it as a gross example of the "principle of indeterminacy" introduced by Heisenberg to defy the possibility of completely knowing both the speed and position of an electron. Full knowledge in such cases is not merely improbable; it is impossible.

—*J. Parenteral Therapy*, Winter issue, 1945.

The Planners

THE war, if it demonstrates anything, demonstrates that mankind as a whole is morally and politically unfit to apply the knowledge which science has placed at its command. Every scheme to divert the working of natural laws from constructive and useful purposes to destructive and useless purposes must lead to sorrow. Is it not odd that there should be so many coming forward now with plans for perfect world orders to be built out of the ashes of the present debacle? Those who offer the plans are much the same people who achieved the failures.

—DR. WILLARD H. DOW, quoted in *Clinical Medicine*, November, 1944.

Fatigue

THE very core of modern preventive medicine lies in the area of greater understanding of human beings as they go about their daily pursuits. Knowledge gained by the skillful practice of medicine from this point of view should be combined with systematic studies of man which should become established in many of the university centers in the country. Strangly enough we seem to know more about man when he is ill than when he is well. It is fair to suppose that if this paradox were reversed the welfare of the race might be greatly improved. The psychogenic aspects

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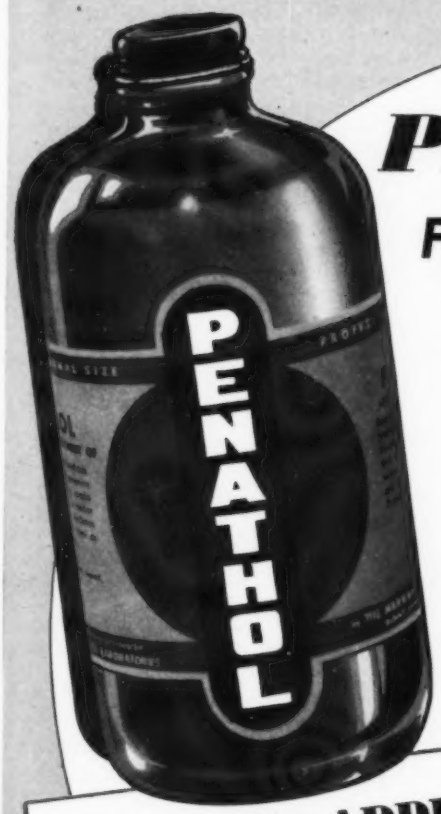

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Independent laboratory tests, including several popular athlete's foot preparations, conclusively demonstrate two basic advantages of PENATHOL:

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Because PENATHOL penetrates deeper, it acts more quickly, more effectively. Provides a film of medication that seals cracks and fissures, reduces inflammation.

EASY TO APPLY!
DRIES INSTANTLY!
No Grease!
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No Stain!

Proven by More than Half a Million Patients in World's Largest Private Foot Clinic!

Clinical evidence for more than a decade substantiates the claims made for PENATHOL. It is non-toxic, non-irritating, instant-drying. Assures complete patient cooperation. Available in one-pint Professional Size.

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Gushing water is bound to get coverage—bound to get absorption. Patients with pernicious anemia are bound to receive effective treatment with Purified Solution of Liver-Breon; when the solution is injected, material derived from but 1/30 as much liver need be given as when administered by mouth. The injection brings about rapid remission of the symptoms; absorption is certain; massive doses are possible more economically; and further, there is a storage effect permitting infrequent injections. Purified Solution of Liver-Breon is available in two strengths, both meeting the standards of the Anti-Anemia Preparations Advisory Board.

Supplied: 5 U.S.P. (Injectable) Units per cc in 10 cc vials;
10 U.S.P. (Injectable) Units per cc in 5 cc and 30 cc vials.

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of fatigue and their relations to illness still await scientific proof. Apparent cause and effect have long constituted the core of wishful thinking. Nevertheless, those who are experts at worry become the most fatigued. Next in line are those who are dissatisfied and unhappy, and last a large group swamped by the dull and dreary grind of daily tasks. We are quick to recognize shell shock in the soldier and sailor. We seem loath to recognize the same or analogous pictures in our patients when they follow from less dramatic, more insidious factors, slowly but surely at work over the months and years. Some of these influences we can stop, some we can modify, and for some we can teach acceptance. As a people, we are victims of time and circumstance.

We have too many bad conditioned reflexes; we know too many things that are not so. We are conditioned by fear fostered by commercial advertisers. We have crutches instead of feelings of independence. We have an increasing divorce rate. Emotions rather than reason control our acts. Whenever sound established routines, whether of church or state, are disrupted, as is now the case on a grand scale in Germany, and in their stead are placed chimerical objectives such as *Lebensraum*, disorganization of society follows. We hear much of subconscious motivations but if as physicians we could learn to deal with the conscious field we should greatly relieve the majority of our patients. If we look for causes of unhappiness, using the term in a broad sense, and do what we can to remove them, we shall have done much to relieve fatigue.

—A. V. Bock, M.D., quoted in *Clinical Medicine*, October, 1944.

Drafts and Colds

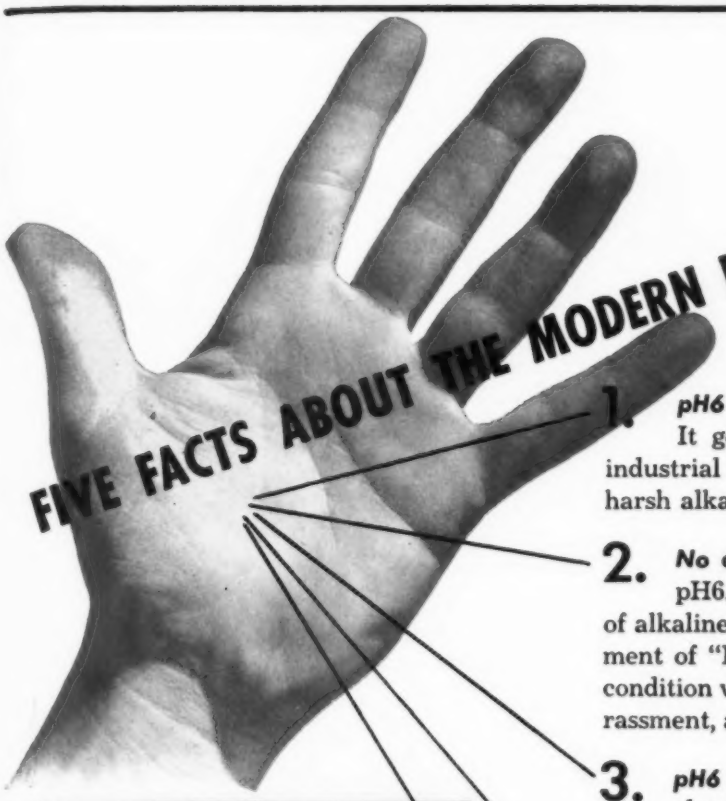
THE laymen's ideas that sudden drops in temperature are likely to bring on a cold and that drafts have something to do with catching cold got scientific confirmation in a report by DR. JOSEPH H. KLER, of New Brunswick, New Jersey, to the American Academy of Ophthalmology and Otolaryngology meeting in Chicago. In a study of colds among 5,500 employees of Johnson and Johnson in New Brunswick and Chicago from July, 1942, to February, 1944, DR. KLER found that every sudden drop in temperature was followed in a day or two by a rise in the number of colds. Shipping departments, which are usually drafty places, he also found, had uniformly a high general incidence of colds and a high incidence of time-losing colds. There were fewer colds in air-conditioned plants. Sex, age and the working posture were also found to have a bearing on the number and severity of colds. There were many more time-losing colds among women throughout the year, and what DR. KLER believes may be fully as important in the increased severity of colds, the majority of colds in women came at the menstrual period.

—*Science News Letter*, quoted in Lippincott's *Digest of Treatment*, January, 1945.

Limitations

A PROBLEM which may be critical for the government in industry is the problem of freedom and control. If the government sets itself the social objectives it will have to take action limiting the complete freedom of the industrialist to produce what he likes and to run his factory in a way which he thinks is best. That encroachment will leave the greater part of his activities unaffected, but at any given time it will be a very real thing for the individual industrialist, and he will possibly resent it bitterly. Cooperation between industry and the government cannot be effective unless they are substantially agreed about the objectives which the government is seeking. If they are so agreed and industry agrees that a high and stable level of employment is not only possible, but desirable; that the government should pursue a rising standard of living for the bulk of the people; that the government offer people security against unemployment, sickness and old age; that it is the government's responsibility progressively to develop the resources of this country—then industrialists must be prepared to operate within a framework which allows the government in cooperation with industry to achieve those objectives. We must recognize that the achievement of these aims will impose upon us as individuals some restriction of our complete freedom of action. The whole progress of collective social responsibility and the growth of a common conscience

WHAT IS pH6?



FIVE FACTS ABOUT THE MODERN INDUSTRIAL SKIN CLEANSER

1. ***pH6 is a modern non-alkaline "Soap Replacement."*** It gently yet speedily removes nearly all types of industrial grime . . . even those which stubbornly resist harsh alkaline soaps.

2. ***No other cleanser need be used*** in conjunction with pH6. It is specifically intended to *eliminate* the use of alkaline or abrasive cleansers which lead to the development of "Factory Hands" . . . the raw, red, defatted skin condition which causes workers so much discomfort, embarrassment, and even loss of manual dexterity.

3. ***pH6 is not a protective cream.*** But it is a *protective cleanser.* It will not alkalize the skin and has been specially formulated not to defat the skin . . . greatly reduces chapping.

4. ***Convenient dispensing methods*** have been specially developed for pH6 and the Non-Abrasive Cornmeal Scrubber . . . so handy that workers willingly use pH6 in place of harmful ordinary cleansers.

5. ***Plant-wide use of pH6 does not increase costs*** . . . and often *saves* money.

...AND WHO IS THE STEPAN CHEMICAL CO.?

This company, established 13 years ago, is a primary producer of sulfated oils. Among the company's products are sulfated oils of dermatological quality for the medical profession and for the cosmetic industry.

Based on this experience, the company has pioneered the application of sulfated oil for industrial skin cleansing purposes.

Being a primary producer, the Stepan Chemical Co. is able to market pH6 as an industrial chemical of dermatological quality rather than as a specialty . . . and has priced it accordingly. An important and exclusive Stepan feature is the convenient method of dispensing the Non-Abrasive Cornmeal Scrubber, where needed, along with liquid pH6. Send for free samples of pH6 and complete technical data. Mail the coupon.

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"Every man at his drafting board has a job to do. There's no time for sick-absenteeism. That's why we figure they give us these clean, individual paper cups—no chance of catching something from the other fellow."

Safety in regard to health is just as important as safety from accidents. Both can keep men off the job.

Dixie Cups in the plant cafeteria eliminate much of the hazard of contagion that goes with hurried dishwashing and inadequate help. They actually speed up service and compare favorably on cost.

CAUTION: Dixie Cups are being so widely used by the armed forces and war plants that there just aren't enough to meet the demand on certain sizes. So if you cannot get the cups you want, we hope you'll understand.

Dixie or Vortex Cups at drinking fountains in office and shop, eliminate the possible mouth contacts where the lips of others have touched. In terms of reduction in sick-absenteeism they turn in a handsome profit on the investment.

Why not make this "safety" suggestion to the head of your cafeteria? . . . To your office manager . . . and the plant manager, too?

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about the conditions in which people live has been accompanied by progressive limitations on the complete freedom of action of individuals. When the governments in the 19th century imposed limitations on the hours and the age at which children should begin to work in the factories, they were imposing serious limitations upon the freedom of action of the individual industrialists. That has come to be accepted and indeed welcomed by most industrialists, because they believe the social objective aimed at was a legitimate one, and one with which they were in sympathy. That is the issue—does industry accept the broad social objectives which the government will set itself in the postwar period? If so, I believe it will be willing to accept the limitations on its complete freedom and to operate within the framework established by those objectives.

—From "Industry and Postwar Reconstruction," by DR. H. C. COOMBS, Director-General, Postwar Reconstruction; address to Institute of Industrial Management, Melbourne, Australia.

The Sides Are Higher

THE people should heed the widespread editorial criticism of the Wagner-Murray bill, now before Congress, to drastically increase social security taxes and bring the medical profession under total domination of government. One editor, in commenting on the bill, declares it "would destroy the private practice of medicine in the United States. It would open a road which would lead straight to a monstrously expanded Federal bureaucracy of such power that America would inevitably be transformed into a totalitarian state. . . . Frankly, I am less concerned with the welfare of the physicians than I am with the tremendous stride toward the further regimentation of American life which will be taken if this bill is passed. Legitimate business has already been put in a rut. It is proposed to put the medical profession in a rut. Next, one profession after another will be put in a rut. And the only difference between a rut and a grave is that the sides of the grave are higher. But in time the rut will be deep enough."

—"Item of Interest," in *Weekly Bulletin*, St. Louis Medical Society, January 12, 1945.

Connecticut Conference

A JOINT CONFERENCE on Industrial Health and Safety was held at the Hotel Taft in New Haven, Thursday, December 14, under the auspices of the Connecticut State Medical Society and the Manufacturers' Association of Connecticut, Inc. The meeting was divided into a series of discussion panels: The Physically and Mentally Handicapped; Rehabilitation of the Industrial Worker; Safeguarding the Industrial Worker. DR. MARTIN I. HALL, medical director, New De-

New

MORE EFFECTIVE TOPICAL CHEMOTHERAPY FOR EAR INFECTIONS

White's OTOMIDE

ADVANTAGES: (1) Antibacterial efficacy, not inhibited by purulent exudate. (2) Gratifying local analgesia. (3) Early remission of discharge and odor in acute and chronic otorrhea.

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Glycerin (high Sp. gr.)	q.s.

Effectively antibacterial, analgesic, hypertonic, yet non-irritating, White's Otomide provides in a stable solution the established clinical advantages of carbamide-sulfonamide.[1,2,3] Carbamide (urea) alone has been successfully used in acute and chronic middle ear disease.[4,5,6] Its association with sulfonamide enhances antibacterial activity, inhibits sulfonamide antagonists in purulent exudates.

INDICATIONS: Local prevention and treatment of the usual bacterial infections of the middle ear and external auditory canal.

White's Otomide is supplied in dropper bottles of one-half fluid ounce (15cc.)—on prescription only. White Laboratories, Inc., Pharmaceutical Manufacturers, Newark 7, N. J.

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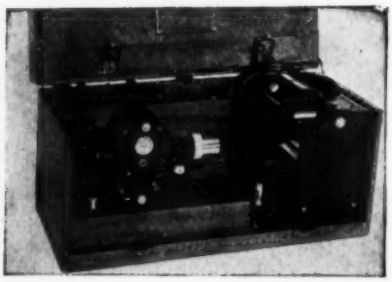

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parture Division, General Motors Corporation, Bristol, spoke at the first panel on "The Industrial Physician's Roll in Examining, Placing and Safeguarding Workers." He discussed the necessity of the physicians being familiar with the working conditions of the plant environment and the physical demands of the job if he is to render greatest service to the employee and employer alike, and outlined the necessary physical examination program, discussing pre-placement, periodic, and re-entrance examinations. He stressed the desirability of health education by utilizing all opportunities to consult with employees and through this opportunity to disperse health information at the most propitious time. Personal instructions may be supplemented with short health topics in the plant publications, news letters, posters, and the like. DR. PHILIP J. MOORAD, of New Britain, on this same panel discussed the "Mental Problems Affecting Industrial Workers" and their solution, with special reference to veterans. DR. MOORAD said in conclusion that it was obvious that industry has among its employees a surprisingly large number and variety of mental illnesses, and because of no care or plan for the problems that entail, they go unrecognized causing an alarming number and type of difficulties which handicap smooth and efficient operation of the plant; that while the problem of the returning veteran is in the limelight, it should not force the greater problem of civilian workers from attention. He felt that in those properly selected for positions of leadership, psychiatric orientation and training can not only recognize but also can frequently correct the trouble at its source, and that, if necessary, the physician and psychiatrist may be consulted in those cases which do not react favorably to their suggestions. He felt definitely that a psychiatrist should be on the consulting staff of every modern industry. He stated that there was no cause for alarm if there was a constructive plan which included psychiatric orientation and training of the supervisory force, and the close collaboration of the plant physician and consulting psychiatrist.

—*Connecticut State Med. J.*, January, 1945.

The Fountain Pen

MEDICINE is still an art. Not yet —and probable never—can all the processes of disease be put to crucial laboratory tests or detected by careful physical examination. We must still resort to the more primitive method of listening to the patient with a critical but open mind. Lisening to the patient's heart and lungs is imporant but listening to his tongue is even more important. His symptoms must be clarified by careful questioning. All the peculiar things a patient sayes are not necessarily idiotic because we cannot at present explain them on a scientific basis. The physician who dismisses with a lofty and superior air a subjective complaint because he knows of no scientific reason for it is really concealing his own ignorance behind a pseudo-scientific screen. Withering did not do this when his patient with dropsy improved after foxglove was prescribed by the witch; Hess was humble enough to investigate the codliver oil "myth." The unraveling of the many puzzling and seemingly capricious subjective manifestations of disease will come not by dismissing them but by investigating them. A pain in the abdomen is no less a phenomenon in nature than a mass in the abdomen and both manifestations merit the physician's most careful study, even though the exploration of the former usually requires more time and a more delicate instrument—the physician's cerebral cortex rather than his knife—and is likely to be less remunerative. In this day of much needed emphasis on the importance of the objective laboratory methods of examination, we should never forget that the most valuable of all special medical tools is the fountain pen, guided by intelligence and propelled with thoroughness.

—From "Maintaining Medical Ideals," by TINSLEY R. HARRISON, Dean, Southwestern Medical College, Dallas, in *Texas Reports on Biology & Medicine*, 2:3, Fall, 1944.

A story that
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Quality in Estrogenic Therapy:
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The uniformly high potency of Estrogenic Hormones, R&C, is maintained by rigid standardization in our own laboratories. Estrogens are first biologically assayed by the vaginal smear method on rats, and then by a modification of the Fluhmann mucification test on mice, to check possible variances in the assay technique. Each batch is then reassayed in an independent laboratory—triple protection for the physician, and for the patient.
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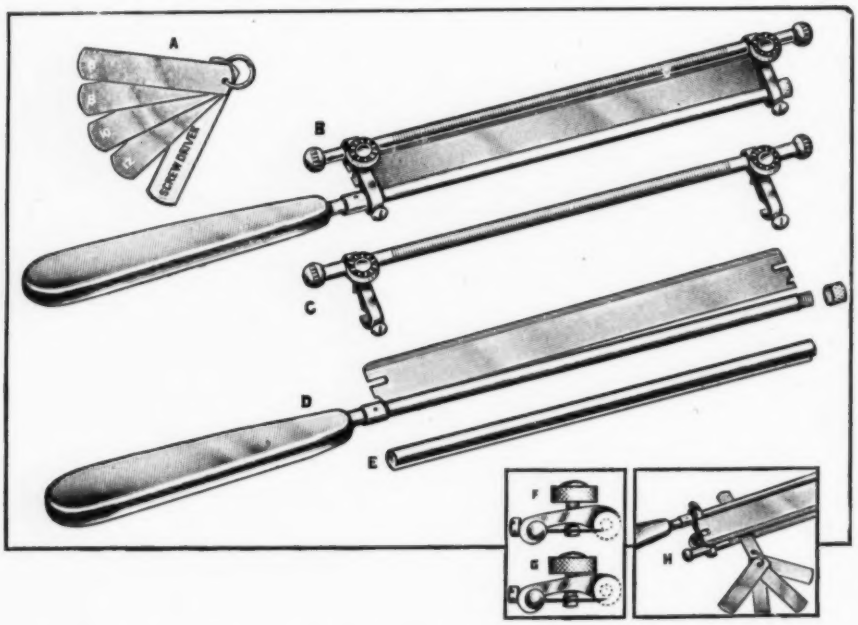

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At the suggestion of many users, the new Blair-Brown Skin Grafting Knife is now offered with a detachable blade and the Marck's Thickness Determining Attachment is now furnished with a set of four copper plate gauges for accurately regulating the thickness of the desired skin graft from 6 to 36 thousandths of an inch in 2 thousandths inch steps. In use, the gauges are selected for the desired thickness and are then placed between the knife edge and the threaded grip rod as shown in illustration "H" above. The knurled thumb screws at both ends of the Marck's Attachment then are adjusted until the space between the grip rod and knife edge provides a light tension on the gauges.

The detachable blade feature greatly reduces the cost of using the knife since extra blades are inexpensive and make it possible to own the equivalent of five knives at less than the former cost of two knives. These blades are made of razor steel and when properly stropped by the emery flour method before each operation have been used in twenty or more operations before needing honing. A honing tube, "E," is supplied with each knife to facilitate changing the angle for proper honing. A metal container which will hold seven blades is also included for use in storing and sterilizing the blades.

B-B967 — Modified Blair-Brown Skin Grafting Knife, "B," complete with one blade, Marck's Thickness Determining Attachment and set of four gauges..... **$18.50**

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Not Interested

AMERICAN business management is warned almost daily by politicians, professors or militant editors to give the country acceptable postwar jobs for as high as 60 million persons, or get ready for socialism, communism or chaos. Perhaps it would have a better chance of giving, if it got a little more help from the receiving end. Here is the response that one company got when it tackled its peacetime problem of jobs for about four times as many persons as it employed before the war. The Crosley Corporation, of Cincinnati, instituted a postwar readjustment plan. Through the employee publication, it passed on to all personnel the most complete picture it could of manufacturing prospects for the company's products, the provisions being made for going into foreign markets, for rehiring veterans, for placement of personnel in dealer and service organizations and for a labor-management board for helping employees to locate outside the company in the kind of work most to their liking. To guide the board, it asked employees to fill out a questionnaire carrying such questions as whether they planned to work for that company or to get a job with some other concern. Did they plan to go into business for themselves? To move out of town? What was their working experience, education and job preference? What suggestions did they have which might help in outlining the employment problem which would have to be faced and in meeting that problem? The company mailed 9,022 blanks to employees at their homes. A reply envelope was inclosed, so that not even a stamp had to be bought. R. C. Cosgrove, vice-president and general manager of the corporation, told a clinic on labor relations held by the National Association of Manufacturers of such results as the following: Only 2,796 questionnaires were returned. In other words 6,253, or 70% of the employees, were not sufficiently interested in their postwar job future to give the information which might help management to help them. Said Mr. Cosgrove: "Are these people going to disappear from the labor market? Are they totally unconcerned as to their future? Are they looking to the government to take care of them? . . . We are doing a lot of planning and showing great concern which is not generally shared by our employees." Ninety-five per cent of those employees who did return the questionnaire said that they would like to work for Crosley after the war. That supported the management's feeling that returns had been secured from the majority of employees who definitely were interested in staying with the company. But that figure, 95% of the original 30% who responded, would amount to only 28.5% of all employees. Subsequently the management distributed among employees a government-prepared booklet asking for direct, frank and unsigned answers to questions designed to help the industrial relations department in improving working relations in the plants. It asked about the employee's feeling towards the company, for comments on supervision, on treatment by the employment office, and provided a "gripe" corner for expression of grievances. The company got less than a 10% return.

Industrial Contract Practice

SINCE last report the broth of industrial contract practice has emitted a few significant and encouraging bubbles. Among these are some which further confirm the simpleton nature of doctors who succumb to the lure of this type of practice without giving thought to the damage this may do their colleagues, and eventually themselves, through injury to medical practice in general. Resulting from the last report of the committee studying the subject, which disclosed there is precious little difference between those doctors doing industrial contract practice, of which railroad contract practice is typical although by no means the sole example, and

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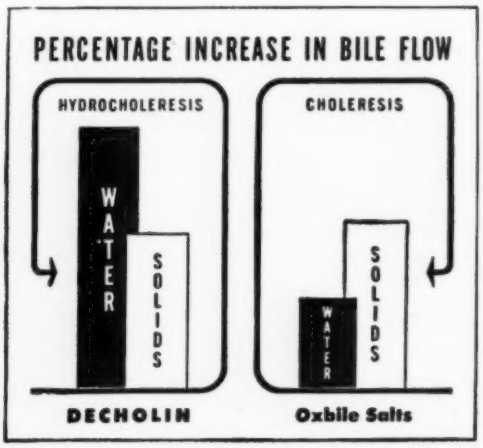

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PACE-MAKER OF BILE ACID THERAPY

those selling their professional talents for the advantage and profit of commercial hospital associations, the councils of a number of the county societies are looking into the relationships of their members with increasingly critical eyes. There is a good chance as a result of these critical reviews that the so-called distinctions which were formerly thought by the uninformed to separate the two groups will be found largely or totally lacking. The hard facts of the situation prevent any other conclusion than that both industrial and commercial hospital association types of third party dominated medical practice are identical in substance in so far as imposition upon and unfairness to the regular medical profession are concerned. When completed, the reviews should provide a clear channel marker to guide the course of any further actions deemed advisable in the few instances where educational efforts alone may prove insufficient. Paralleling this action on the part of the medical societies of the state, but in no way connected therewith, is what at first glance appears to be a reform movement developed by certain of the railway brotherhoods and allied organizations to bring about a railroad medical situation more to their liking. The effort seems aimed almost entirely against railroad managements and particularly the claim departments with their allegedly dominated "company" doctors. It is this circumstance which lends some doubt to the likely success of the reform attempts, since a division of procedures or administration of the so-called railroad hospital departments might meet the brotherhood objections without removing the fundamental objections on the part of the medical profession. At the same time there may be justification for a little hope not based on wishful thinking. In at least one instance representatives of the brotherhoods of a railway serving Oregon and an adjacent state conferred with railroad management toward revising the present company plan of rendering medical care, with the result that for the first time within recent memory a railroad management initiated some efforts to re-examine its plan and learn what alternate procedures might be available. It is only fair to warn that any conferences between the brotherhoods and their employers, although dealing with a medical topic, are in fact but one more item in a host of employer-employee relations constantly at issue between the two contenders. Doctors should not expect any medical reforms which they feel desirable to emerge from any such management-employee conferences, when they themselves as individuals and as a profession have hitherto been unable or unwilling to set their own house completely in order. It is for this reason the recent stirrings of the various medical societies along these lines can be considered encouraging.

—*Northwest Med.*, January, 1945.

The Pat on the Back

ZEALOTS, evangelists, and crusaders, have their value *before* an administrative tribunal, but not *on* it. Other important qualifications are patience, courtesy, and a desire to be helpful to the extent that the law permits. In any large administrative tribunal . . . a vast amount of the real work must necessarily be done by the staff. It is a difficult problem to give the individual members of the staff proper recognition for work well done—recognition on the outside as well as the inside. It is very important that this problem be solved, but I am frank to say that its full solution has not yet been reached."—JOSEPH EASTMAN. . . . WHEN the production manager of a factory in a small Michigan town asked his best foreman why production had been falling off for several months the foreman replied, "I can't do my best work, Mr. Mac when you are mad at me." "Mad," said surprised Mr. Mac, "I'm not mad at you. What makes you think so?" "Well," said the foreman, "you haven't been in my office with a word of praise for nearly six months."

—*Personnel Administration*, December, 1944.

Big Stick in Oregon

OREGON telephone employees through the medium of their recently incorporated Telephone Employees Hospital Association have heaved a weighted club at Oregon's medical profession by their action in going over the heads of regular medical organizations, including the Oregon State Medical Society and

Front line fluoroscopy

IT'S a fast war—a mobile war. But radiography keeps pace—follows the battle everywhere. Result—fatalities are fewer.

Today, portable x-ray units, even when delivered by parachute, can be set up in a matter of minutes. Rushed wherever needed, they meet emergencies—enabling field hospitals to handle peak loads beyond the capacity of regular equipment, and providing the benefits of radiography where it would otherwise be unavailable.

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FORMULA: Pineoleum contains camphor (.50%), menthol (.50%), eucalyptus oil (.56%), pine needle oil (1.00%), and cassia oil (.07%), in base of doubly-refined liquid petrolatum — plain or with ephedrine (.50%).
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*Griesman, B. L.: Arch. Otolaryng., 39:124, 1944. (Abst. J.A.M.A., 125:173 (May 19) 1944; Quart. Rev. Otorhin. & Bron.-Esoph., 3:202, (June) 1944). Novak, F. J. Jr.: Arch. Otolaryng., 38:241, 1943.
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Oregon Physicians Service, with a direct appeal to individual doctors throughout the state through the following communication just received: *"To All Physicians and Surgeons in Oregon:* The telephone employees have organized a hospital association among the employees only. We have worked out a list of fees with a group of doctors herewith enclosed for your approval. For your convenience in replying we are also enclosing a self addressed stamped envelope. — TELEPHONE EMPLOYEES HOSPITAL ASSN., INC., M. E. BLANKENSHIP, *Chairman.*" More accurately, if less diplomatically, the missive could have been better worded to read somewhat as follows: "Greetings, Suckers! The telephone employees want cut-rate medical care on a prepaid basis, so we have organized our own hospital association for employees, leaving the boss out, to get this regardless, including drugs and family coverage. We are a preferred health group, therefore should get a low cost rate, and we think $1.75 to $2.00 is about right including the drugs handout. We've checked this with some of our pal doctors who are sharper than your medical society dummies and accordingly we send you herewith the fee schedule which will govern the activity. Whether you like this fee schedule or not, it is our baby and will be the remuneration while you serve us, but we will pay off by the tenth of each month. We hope you will approve this set-up and fall in line with our ideas, so to make your submission easier we enclose herewith a stamped addressed envelope for your anticipated favorable reply." Greetings, suckers, indeed! In order to appraise the situation correctly before swallowing the bait or reaching the only sound conclusion under the circumstances, the individual doctors to whom the missive was directed should know the background and facts leading to this attempted bludgeoning. When or where this so-called hospital plan was first conceived we know not, but it appears to have been well worked out, if not thought out, long before any contact was made with other than the "group of doctors" mentioned in the letter, if any. Eventually a contact with Oregon State Medical Society was requested, and two members of the public policy committee and the executive secretary met informally with representatives of the telephone employees. It was readily seen the proposals were clouded with much misinformation and misunderstanding, but nevertheless the medical people carefully outlined the steps which should be taken to secure medical society approval of any plan developed. They further stated that Oregon Physicians Service already furnished much of the service demanded by the telephone employees, and advised that before much more was done a conference should be held with O.P.S. officials, who were the best posted as to costs and other pitfalls of operation of such plans. The next heard of the plan was when telephone representatives appeared before the November meeting of the State Council, seeking approval of a fee schedule, presumably the same now submitted, which was and is baited with impractical generosity. The demand for approval was presented with somewhat of an "or else" attitude which slightly puzzled the councilors, but as the impractical nature of the plan developed, this attitude was considerably modified. It was of notable significance that each councilor present considered the plan unworkable on the basis proposed, warned of the pitfalls, and suggested the matter be gone into with O.P.S. actuaries to see if a mutually satisfactory contract could not be developed. *The question of approval of the plan or the fee schedule was not voted upon because it was felt the matter was too poorly developed and premature,* yet the door was left open for further discussions. It is known one conference was held with O.P.S. officials, at which no agreement was reached because the proposed arithmetic simply did not square with actuarial experience. The telephone people then offered to eliminate the request for drugs, if the premium rate would be lopped off twenty-five cents. This still did not jibe with the facts, so no accord developed. It was agreed, however, that a further conference would be held in an effort to explore the possibilities, and a tentative date was set. Before this could be held someone jumped the gun with this direct appeal for an approval which regular channels were unable to entertain, due to the impractical plan as presented. This sudden attempt at side-stepping the usual channels now leads many doctors to question the

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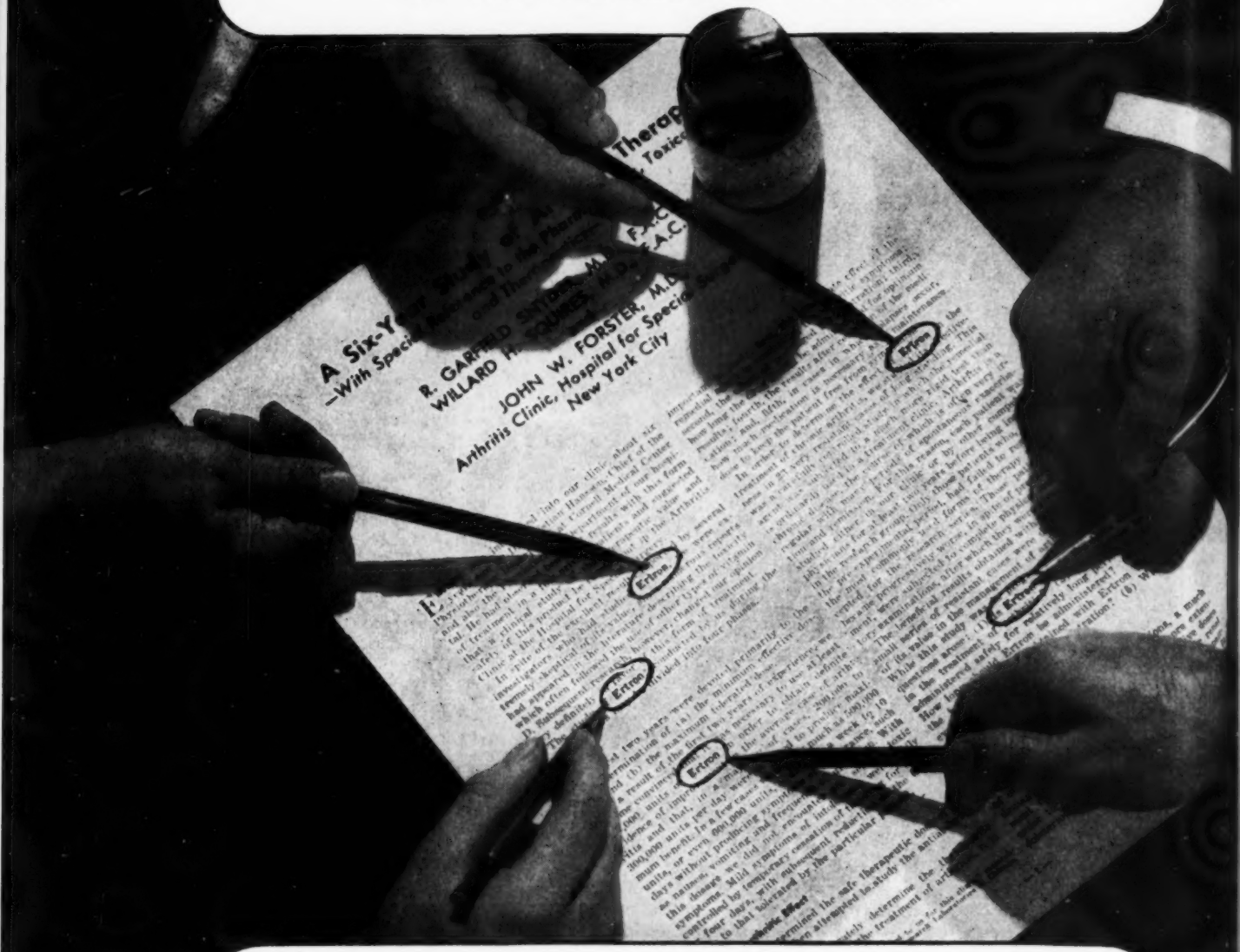
In the Treatment of Arthritis



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entire good faith and sincerity of the promoters, when additionally it is recalled the plan does not appear to have originated in any reputable medical group or circles and the initial contact with the medical society was so late as to appear virtually an afterthought. Thus they wonder if this scheme, combined with the obvious unwillingness of the promoters to reconcile their arithmetic with actuarial experience, is not in fact a poorly camouflaged attempt to divide and conquer. The fact that it would largely and unnecessarily duplicate the mechanisms which the doctors have themselves set up to supply legitimate prepaid medical care would seem to lend substance to the suspicion. It is high time all members of the medical profession met this and all kindred challenges once and for all by demonstrating that no longer are they willing to be victimized by such badly disguised or any sugar-coated "wedgings" designed for their subordination to promoting third parties, lay, medical or political. *This is a definite crisis in the affairs of Oregon's doctors*, a bold attempt to foist cut-rate medical care upon them and their patients under the guise of a poorly conceived prepaid plan. This and all other similar bludgeoning efforts should well receive from each doctor of the state the treatment they so richly deserve. Despite this attempt on the part of the telephone employees to bludgeon the medical profession into the telephone line, the door has not been closed to a proper consideration of the health problem of the telephone employees if they have one. But it should be understood once and for all that Oregon's doctors are aware of the distinctions between prepaid and cut-rate medical schemes, and above all will not be pushed around.

—*Northwest Med.*, January, 1945

First Concern

INDUSTRIAL HYGIENE is a first concern of public health as it is of labor and management. Every state should provide this service, and within states, each major industrial area should have a regional industrial hygiene unit. At present, industrial hygiene programs are operated for the most part, on Federal funds and with inadequate staff. Many states have not fully realized their industrial hygiene obligation. Programs should be developed that will provide personnel in sufficient numbers to insure a healthful work environment and to apply all the knowledge that is available.

—DR. THOMAS PARRAN, Surgeon General, USPHS, addressing the Health Institute, UAW-CIO, Detroit.

Our Health Record

WITH all due respect to Senator Pepper, we maintain that far from being a nation of weaklings, our health record is second to none in the world. There is room for argument, to be sure, on what constitutes sound national health. We should like to dispel the apparent belief among some of our superpromoters that medical Utopia is just around the corner. Actually it is no closer than it is in economics, in education, or in statesmanship. We simply do not know enough about the secrets of nature to prevent congenital deformities or to immunize against rheumatic infections. Nor have we found a method whereby we could make all people seek timely medical care. And while we are on the subject of timely care we suggest in full innocence that government too often interferes with the process by legalizing cult practice. All of these factors play a part in our national health status.

—From an editorial in *Nebraska State Med. J.*, January, 1945.

Specific Group Problems

WE will see a great expansion of the fight that the health of the individual in industry is important in the next few years. Industry is developing itself into not only a means of production, but also as a social institution, and a medical department in industry is more cognizant of the industrial hazards than a medical department that has no knowledge of the industry in which the man works. In other words, a group of people working in an industry are developing into a group having specific medical problems that can best be handled by a medical department cooperating with the employer.

—From an address by DR. R. E. S. YOUNG, Medical Director, Curtiss-Wright, Columbus, at All-Ohio Safety Congress.

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Histaminase has been found highly serviceable in the management of a variety of allergic conditions. Published reports attest to its value in allergies due to such physical agents as cold, heat and light, as well as in skin disorders characterized by urticaria and angioneurotic edema, and in certain drug reactions. Some cases of hypersensitivity to foods have also been benefited.

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ACTIVITIES of STATE HEALTH DEPARTMENTS

Colorado

AUTHORIZATION has been given for the employment of an industrial nursing consultant in the Industrial Hygiene Division. Applications for this position will be welcomed. . . . A GROUP of industrial nurses in the State has indicated interest in forming an industrial nurses' association, and requested the cooperation of the Industrial Hygiene Division in getting organized. At the recent annual meeting of the State Nurses' Association, a panel was held on industrial health. The Director of the Division of Industrial Hygiene spoke on "The Role of the Industrial Nurse."

—*Industrial Hygiene News Letter*, December, 1944.

Connecticut

A JOINT Conference on Industrial Health and Safety, under the auspices of the Connecticut State Medical Society and the Manufacturers Association of Connecticut, was held in New Haven on December 14. Panel discussions were held on "The Physically and Mentally Handicapped Worker," "Rehabilitation of the Industrial Worker," and "Safeguarding the Industrial Worker". . . . AT A MEETING of the American Industrial Radium & X-ray Society, Connecticut Valley Section, held in Hartford, November 20, medical problems involved in handling radium were discussed by DR. ROY M. SEIDEMAN, of the Bureau of Industrial Hygiene. Preventive measures in the use of radioactive compounds were discussed by CHARLES DESIMONE, industrial hygienist at Pratt and Whitney Aircraft Corporation.

Iowa

FOR the first time in Iowa, an industrial hygiene course, supplemented by "in-plant" experience, has been provided for nurses. This course was inaugurated by Iowa Methodist Hospital in Des Moines, and was made possible through the cooperation of the Division of Industrial Hygiene, Iowa Department of Health. Lectures were given by DR. BRUCE BROWN, Acting Medical Director, MR. N. C. BURBANK, JR., Industrial Hygiene Chemist and MRS. EVA W. HAGUE, Industrial Nursing Consultant. The lectures were followed by two weeks of full-time participation in the industrial nursing program conducted at the Des Moines plant of the U. S. Rubber Company.

—*Industrial Hygiene News Letter*, December, 1944.

New Jersey

AN INVESTIGATION of a diethylstilbestrol health hazard was made in a pharmaceutical manufacturing plant, by the Bureau of Industrial Health. Workers had been exposed to the dust emanating from the drying and screening operations, which are the final phases in the preparation of this synthetically produced estrogen. Male workers experienced bilateral enlargements of breast tissue and other symptoms of excessive absorption of the drug. It is believed that the portal of entry was the respiratory tract. The installation of local exhaust equipment, together with better enclosure of the two operations, resulted in disappearance of the symptoms of absorption among the workers. . . . THE engineering and chemical personnel of the Bureau of Industrial Health have concluded a number of environmental studies in pharmaceutical, scientific glassware, and tungsten manufacturing plants handling mercury. In each study mercury vapor and dust determinations were made. . . . THE Bureau of Industrial Health participated in the monthly meeting of the South Jersey Safety Council in Camden on December 6, 1944. An exhibit on the subject of silicosis was presented, in which the clinical pathology, methods of collecting siliceous dusts, chemical method of determining free silica, and compensation aspects of the disease were demonstrated.

Pennsylvania

THE Bureau of Industrial Hygiene of the Pennsylvania Department of Health has recently purchased for

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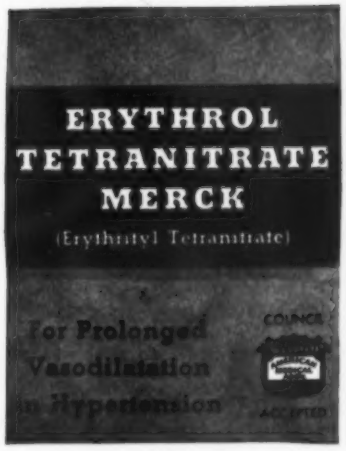

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Washington

THE State Department of Health has been reorganized into four functional divisions: (1) Preventive Medical Services; (2) Central Administration; (3) Public Health Engineering; and (4) Local Health Services. Each division will have its several sections. DR. L. M. FARNER, head of the Industrial and Adult Hygiene Section of the Division of Preventive Medical Services, will administer the Industrial Hygiene Section, whose chief is DR. J. L. JONES. DR. A. L. RINGLE is the new State Health Director, who was recently appointed to that position by Governor Wallgren.

CURRENT ARTICLES of QUALITY

Thiamine Synthesis

HANS C. S. ARONS, M.D., PH.D., Assistant Professor of Pediatrics, Northwestern University Medical School, "Clinical Implications of Recent Advances in the Knowledge of the Vitamins," in *Nebraska State Med. J.*, January, 1945 (30:1, 5-10). Extract: "Most of the vitamin B_1 which we need and which we have in our body is taken in with the various food materials, but actually the diet is not the only source of our vitamin B_1. It has been known for some time that the bacteria in the intestines can synthesize thiamine. This thiamine can be absorbed through the intestinal wall and may become a valuable source of this vitamin. Holt and his associates deprived a number of adolescents progressively of vitamin B_1 in the diet. One of Holt's subjects who had ample free thiamine in his stools was given succinysulfathiazole with the result that within one week the thiamine content of his feces fell to zero. There, you have a clinically important side action of the sulfa drugs. Those sulfa drugs which are not very soluble in the intestinal tract may inhibit the thiamine synthesis by the intestinal bacteria and deprive the patient of a valuable additional source of this vitamin." (Reprints available.)

The Health Officer

DR. F. R. NICHOLAS CARTER, "Local Health Provinces," in *Monthly Bulletin Indiana State Board of Health*, December, 1944. Extract: "WHAT ARE THE REQUIREMENTS OF A HEALTH OFFICER? (1) He must be a legally licensed doctor of medicine. The 1935 health officers law sets up this requirement. This places the entire state health program in the hands of the medical profession. Not in the hands of the lawyers, or the ministers, or any other group, but the medical profession. (2) He must be a leader, since it will fall upon his shoulders to plan and execute his program. (3) He must be possessed of good judgment and imagination. (4) He must be a diplomat in order to sell the desirability of his program to his legislative body. (5) He must be a businessman because he will handle large sums of taxpayers' money. (6) He must have a fundamental knowledge of law, since the very work he is doing is a part of the government of his community. (7) He must be a sanitarian, acquainted with food preparation and sale, milk production and sale, plumbing installation, etc. (8) He must be an epidemiologist and disease preventionist. (9) He must be a public speaker. (10) He must be an educator. (11) He must be a capable and efficient office manager. It will fall to his lot to maintain in readily available form thousands of records, birth certificates, death certificates, etc. (12) He must be an executive, since it will be his duty to direct all office and other employed personnel. (13) Finally, he must be able to make his living independently of the salary he receives as a health officer. It is needless to say that the salary of the Indiana health officer is not even the equal of the starvation wage which we have all heard so bitterly condemned. WHAT ARE THE DUTIES OF A HEALTH OFFICER? (1) He must be a keeper of the vital statistics. (2) He must supervise dog

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bites. (3) He must be responsible for rat extermination. (4) He must quarantine infectious diseases. (5) In discussing communicable disease, the health officer should carry on a constant campaign to educate people concerning the necessity for disease prevention. (6) He must supervise the production and sale of milk in his health province. (7) He must supervise the production and sale of food. (8) He must supervise all plumbing installations. (9) He must be responsible for the purity and freedom from disease of the city water supply. (10) He is responsible for the inspection of old people's homes. (11) Most communities care for the indigent venereal disease sufferer and this duty rightfully belongs to the health officer. (12) In combating tuberculosis in a community, it is certainly the duty of the health department to carry out a program of treatment control and contact investigation. (13) It is the health officer's duty to be interested in housing. (14) The duty of enforcing rules and regulations governing trailer and tourist camps falls to the lot of the health officer. (15) It is a major task for the health department to see that the garbage is disposed of as it should be. (16) It is a health department function to regulate and control fumigation with poisonous gas and the use of insecticide for eliminating and controlling insects, vermin, rodents and other pests. (17) A health department has the obligation of educating people whom it serves. . . . I could go on indefinitely enumerating duties and obligations of the health department. This is not necessary. Permit me to say that the state has issued a 110-page booklet of instructions to health officers. In its contents are hundreds of other responsibilities which each one of us by our oath of office swears he will perform."

Occupational Hazards

"INDUSTRIAL Accidents," in *Industrial Bulletin and Employment Review*, August, September, October, 1944 (23:8, 9, 10) published by New York Department of Labor. Extract: "*Silica Dust*—The engineering control of silica-containing dust released in the sand casting of magnesium alloys is essentially the same as in brass or aluminum foundries and has been too well treated elsewhere to warrant repetition here. However, the good housekeeping practice of wetting down the floors of pouring areas advocated for other types of foundries must positively not be followed in magnesium foundries because of the violent reactivity between water and molten magnesium. *Fluorides*—Fluorine salts are used as oxidation inhibitors for the molding sand and sand cores. Treatments of the molding sand with these fluoride salts may result in an excessively high fluoride exposure during either sand conditioning, pouring or shake-out operations. The immediate action of inhaled fluorides is one of local irritation to the upper respiratory tract, causing such manifestations as coryza and nosebleeds. The breathing of excessive concentrations over a long period of time may also produce a chronic fluorosis. Studies made by Williams indicate that, in general, only the shake-out operations cause an excessive exposure to fluorides. Safe practice demands therefore, that this operation be locally ventilated by conducting it in an exhausted area or enclosure. More recent studies by Largent and Ferneau indicate greater fluorine absorption by men engaged in spraying cores with solutions of fluorides and by pourers than by men who work at shake-out and core knockout. Control of the core spraying operation may be accomplished by the use of an adequate spray booth and providing the workers with respirators. The pourer may be protected by utilizing an adequately ventilated centralized pouring station or else by sufficient general room ventilation while pouring takes place. General room ventilation is also an important supplement to locally exhausted shake-out stations as a means of ridding the workroom atmosphere of excessive concentrations of fluorides. In any case the maximum al-

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lowable fluoride concentration in the worker's breathing zone should not exceed 25 milligrams per 10 cubic meters of air based on an eight-hour daily exposure which is believed to be the maximum allowable safe limit. *Carbon Tetrachloride*—Exposures to carbon tetrachloride may occur where casting chills are sprayed with a suspension of talc, graphite or flint in a carbon tetrachloride solution. As a general rule this operation is of short duration only but where the exposure is at all appreciable it should be conducted in a well ventilated spray booth so as to keep the concentration of carbon tetrachloride within safe limits. (A limit of 75 p.p.m. is generally considered good practice in this regard.) *Sulphur Dioxide*—Wherever magnesium alloys are melted and poured or subjected to high temperature heat treatment, protective atmospheres of sulphur dioxide are utilized to prevent oxidation and free burning of the metal. In the case of melting and pouring this is accomplished by sprinkling powdered sulphur on the surface of the metal while in heat treating furnaces it is provided either by burning powdered sulphur in the furnace or by piping the gas direct from cylinders. Sulphur dioxide is an irritating gas even in low concentrations but in higher concentrations it may cause systemic disease. This gas should be kept below the concentration at which irritating effects are noticed. The concentration of sulphur dioxide in the foundry atmosphere can be reduced to safe levels by several means: (1) hooding the melting pots and furnaces; (2) providing local exhaust ventilation at pouring and shake-out areas; (3) proper design of heat-treating furnaces, and (4) the addition of general room ventilation to the extent necessary. It is advisable that heat-treating ovens be so designed that no pressure greater than atmospheric will be maintained inside the oven to avoid escape of SO_2 into the workroom. One or more gas masks, approved for acid gases, should also be available for emergencies where high concentrations of sulphur dioxide may be encountered. *Chromium Compounds* — Magnesium alloy castings are frequently given surface treatment by immersion in chrome pickles containing acid and dichromates. The handling of these chromium compounds in both solid and solution form are capable of injuring the skin and mucous membrane unless adequately controlled. For the protection of workers engaged in these operations the following measures are essential: (1) Chrome tanks should be provided with adequate local exhaust ventilation to remove corrosive chrome mists from the breathing zone of the operator. (2) Suitable protective clothing such as rubber gloves, aprons and boots should be worn by the picklers. The use of protective creams and ointments are also valuable adjuncts for skin and tissue protection and the use of petrolatum in the nose is useful in protecting the mucous membranes therein and preventing chrome ulcers. (3) Approved goggles and respirators should be worn by workers who are exposed to chrome dusts."

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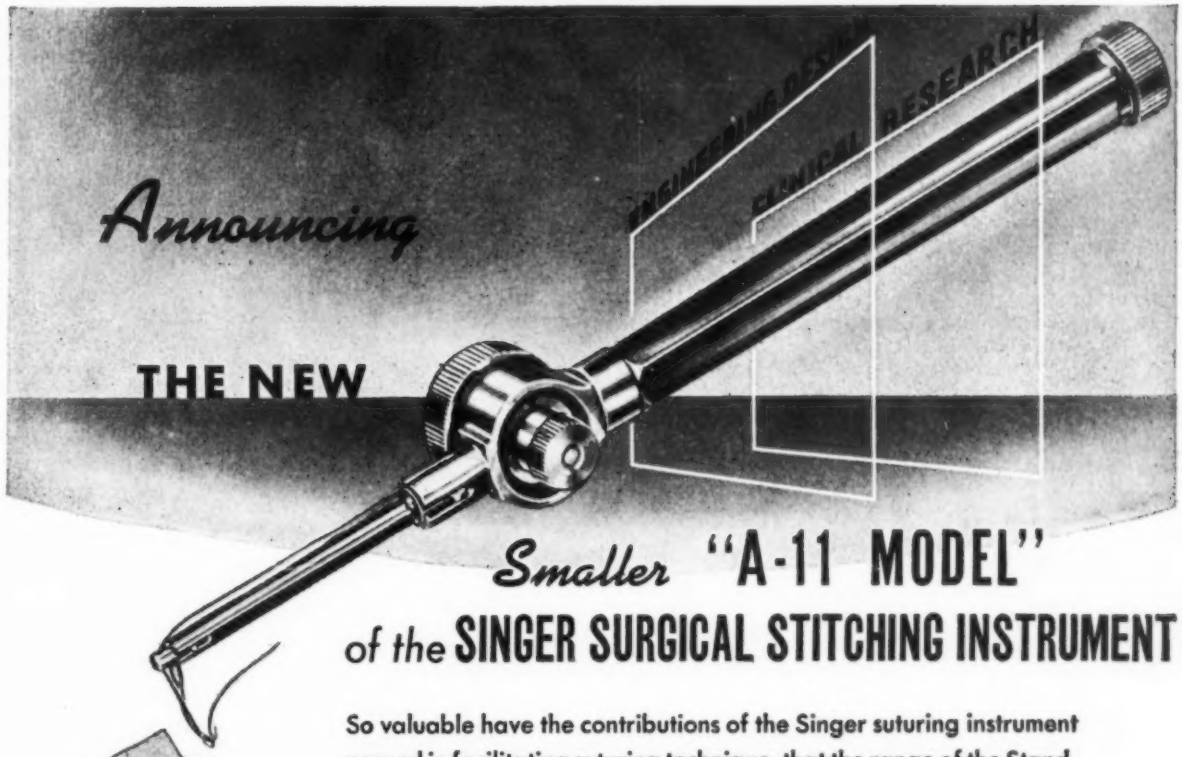
Nutrition in Industry

DR. W. PALMER LUCAS, San Francisco, "A Cooperative Endeavor toward Nutrition in Industry," in *California and Western Med.*, January, 1945 (61:26, 297-298). Extract: "NUTRITIONAL NEEDS OF WORKERS: Although the health and welfare of the worker is a definite contractural requirement of the managers of industry, the nutritional needs of the worker have not been sufficiently emphasized. At the Lockheed Aircraft Plant in Burbank, California, a nutritional study was made under the general direction of the Nutrition in Industry Division of the National Research Council. Dietary histories of the workers were collected by Dorothy Wiehl and reported in the October, 1942 *Milbank Quarterly*. In this study, it was found that only 2% of the diets included amounts recommended as the dietary pattern by the National Research Council, Committee of Food and Nutrition, for five essential food groups; 11% had 'marginal' diets or moderately below standard, while 87% had diets which were unsatisfactory for one or more food-groups. Similar studies were carried on by the Nutrition in Industry Committee of the Alameda County Nutrition Council. A breakfast survey disclosed that 63.9% of the breakfasts of workers in a San Francisco Bay Area war industry were poor or omitted entirely; 21.9% were 'marginal' or moderately below standard and 14.2% were inadequate. A survey of home-packed lunches carried to one of the



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major shipyards in the San Francisco Bay Area disclosed that 40% of the lunches were adequate for heavy work; 25% were adequate for light work; and 35% were inadequate for either light or heavy labor. The Bay Area Nutrition in Industry Committee has now functioned for over 14 months, and the major problems it has faced have been: (1) Acquiring the cooperation of the managers of industry in the realization of the nutrition problems of their workers and action in accomplishing the Committee's goal toward adequate in-plant feeding. This has been an up-hill pull, not because management does not believe in nutrition and adequate feeding facilities, but because their major goal is production. (2) The difficulty that management envisions in getting adequate food to the men at their places of work is often more imagined than real. Every situation that we have studied has had possibilities for successful in-plant feeding. (3) So far the most insurmountable problem has been the Maritime Commission, which furnishes most of the funds for extra facilities in the yards contracted by the Commission. The attitude of its members in this area has been that they are opposed to in-plant feeding. As a compromise for this, they are most interested in the lunch boxes brought from home, and are, at present, constructing markets where workers can buy food for home and lunch consumption. As has been indicated, box-lunches are satisfactory neither from the standpoint of the one who eats them, nor that of the concessionaire who sells what is put up."

Low Back Injuries

DR. H. R. MCCARROLL, Assistant Professor of Clinical Orthopedic Surgery, Washington University School of Medicine, St. Louis, "Low Back Injuries," in Clinical Medicine, January, 1945 (51:12, 353-356). Extract: "The enthusiasm accompanying the popularization of the intervertebral disc lesion in recent years has led to some laxity in thorough study and accurate diagnosis in these patients. The most essential points in the diagnosis of this lesion can be tabulated as follows: (1) Recurrent attacks of low back pain with associated sciatica. (2) Failure of adequate conservative measures to relieve or control the symptoms. (This is one of the most important points and one frequently neglected.) (3) Exaggeration of pain on bending, stooping, straining, sneezing, and coughing. (4) Tenderness over the 4th or 5th lumbar segments. (5) Reproduction of the pain on deep pressure over one one of these segments. (6) Lumbar muscle spasm. (7) List of the back to the opposite side. (8) Limited straight leg raising on the affected side. (9) Reflex changes: Absent or diminished ankle jerk when the lesion occurs at the lumbosacral joint, and absent or diminished knee jerk when the 4th lumbar interspace is involved. (10) Sensory changes in the affected lower extremity corresponding to distribution of the involved nerve root. (11) X-ray evidence of narrowing of the involved lumbar interspace. (12) Absence of other significant x-ray findings."

The Whole Man

SAM NELKEN, M.D., New Orleans, "What Makes Medicine Psychosomatic?" in *New Orleans M. & S. J.*, January, 1945. Text: "In medicine, as in science generally, the great strides of progress follow the discoveries of new tools. These tools are not only apparatuses, like the microscope and the x-ray; they are also methods, like the cultivation of microorganisms; and ideas, like the cellular theory. Often the apparatus and the idea are integrated into one, as the microscope is with the cell theory. When we get hold of a new tool, we proceed to try it out on the old problems, to push its use as far as is worthwhile; in so doing we neglect for the time the problems which will not yield to it. For the past half-century and more, we in medicine have been exploiting a marvelous set of tools, and reaping almost undreamed-of victories over human ills by our use of the microscope, the chemical laboratory, and other means with which all are familiar. Some of us were a little dazzled by these successes, and believed that these tools would conquer *all* ills if used intensively and skillfully enough; all disease was supposed to be basically a matter of

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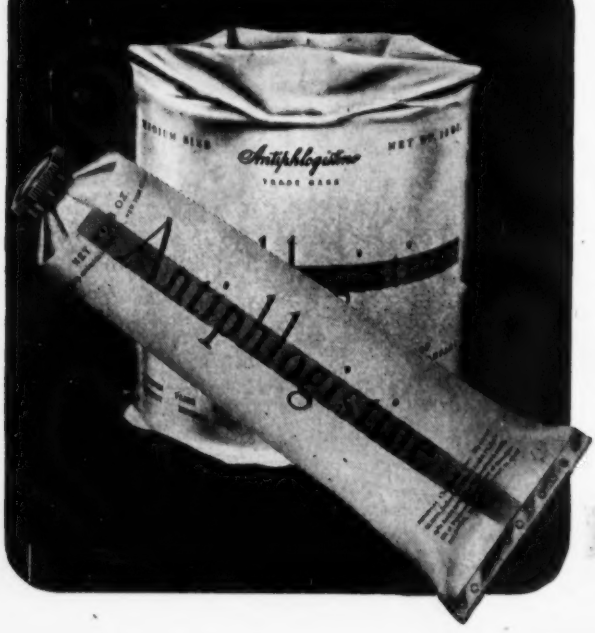

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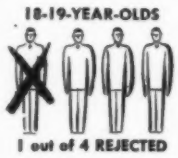
BLINKER TO INDUSTRY

Designation of the year beginning Sept. 1, 1944, as "Physical Fitness Year," a move spurred by Selective Service's disclosure of almost *five* million 4-F's, suggests grave implications to U. S. Industry.

Rejection of 1 out of every 4 eighteen-to-nineteen-year-olds lends considerable credibility to the belief that our estimate of the fitness of American youth has, in typical American fashion, been greatly exaggerated.



Such are some of the reasons which have led the Nat'l. Committee on Physical Fitness, in co-operation with the American Medical Ass'n., to launch a program to better the national health.

PHYSICAL FITNESS INDUSTRIAL ASSET

Physical fitness must necessarily always be vital to industry. For physical fitness is a condition resulting in efficient performance, quicker recovery from fatigue, less absence and generally good morale.

That physical fitness is not achieved just by exercise, preventive medical examinations and correction of existing defects alone is a universally recognized and accepted fact. Large among the cardinal principles of physical fitness looms proper diet.

DIET A DETERRENT

Yet, the prevalence of inadequate diets prompts the National Research Council to state: "All the evidence from numerous surveys is, without exception, in complete agreement that inadequate diets are widespread in the nation."

Dept. of Agriculture national surveys showed that, on the average, clerical workers and wage earners failed to select enough of the right foods to insure good nutrition.

There is ample reason to believe that such vitamin-mineral deficiencies may exist among your employees.

Since inadequate diets can mean excessive fatigue, lowered resistance to colds, eye-strain, impaired efficiency and lowered morale, the fact that vitamin-mineral supplements help to protect against deficiency conditions looms large.

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VITAMIN-MINERAL SUPPLEMENTATION

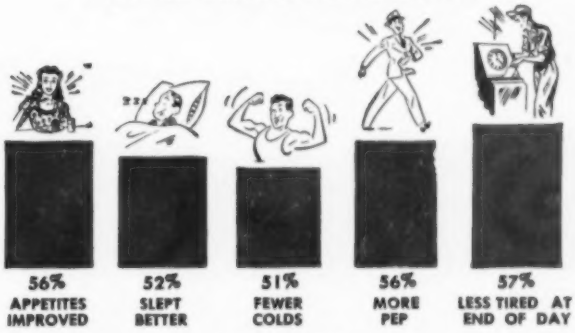
Through the Vimms Industrial Plan, many industries help workers keep up to par by distributing daily the supplement Vimms, which supplies all the vitamins recognized as essential in the diet, plus all the minerals commonly lacking.

Indication of the Vimms program's wide suitability for all types of organizations is its current use within industries ranging from heavy through light, in textile, chemical, and other industrial fields. This includes both plant workers and office staffs.

Inexpensive, easily organized, the Vimms Industrial Plan has a record of ready acceptance—up to 90% of employees in plants using the program enthusiastically participate, willingly accepting vitamin-mineral supplementation.

For example, in a large manufacturing firm, employees taking Vimms regularly returned questionnaires revealing the following figures:

TYPICAL EMPLOYEE REACTIONS



Results reported in other companies are equally gratifying. The Vimms Plan not only yields present benefits but also serves to guard against prolonged nutritional deficiencies which may even affect the workers' later years.

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Department of Industrial Research
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Gentlemen: I'd like more information on how the Vimms Industrial Plan can help my workers keep fit.

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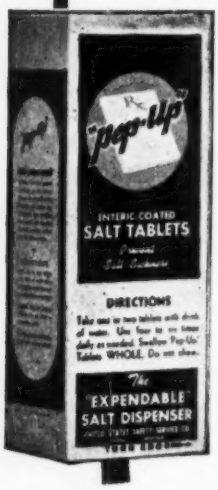

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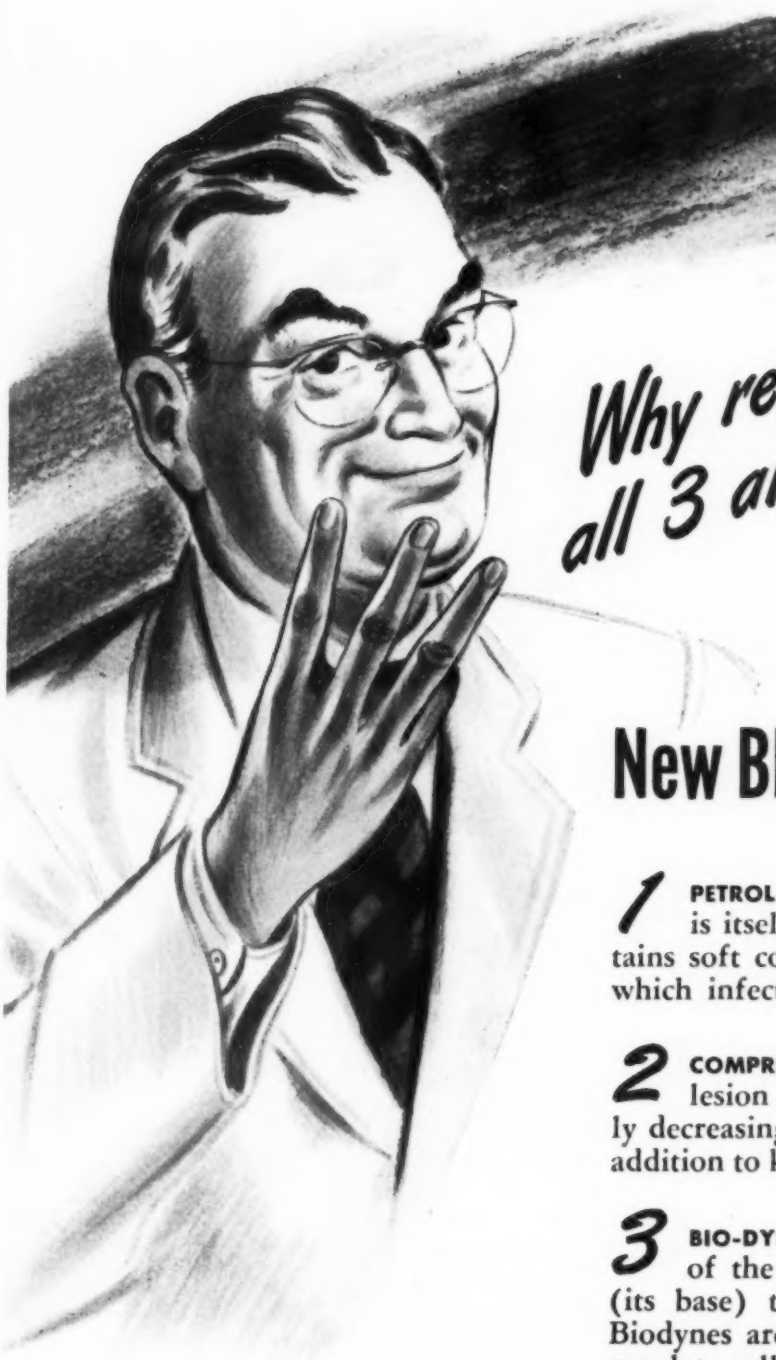
cellular pathology. Others, wanting naturally to help as many people as quickly as possible, tacitly abandoned the attempt to find out exactly what was wrong with the patients they saw; they tried instead to find in each patient something that they already understood, some cellular pathology that could be treated by their wonderful tools. Often, like Procrustes, they forced the patient to fit their methods without much regard for his actual troubles. These errors, made with good intentions, brought pain and loss nevertheless; those who made them could not avoid seeing that something was wrong, but they were often so blinded by the successes of their methods that they blamed the patients for the failures. Some were even angry, as if the patients they could not help were playing some kind of a practical joke on them. But, of course, no set of tools is omnipotent; we were bound to come against the limits of ours, and the more vigorously we exploited them, the sooner their limits would be reached, and our pretensions humbled. These failures meant that new tools, new methods, new ideas were needed; that the scope of medicine had to expand not merely further, but in new directions. Gradually it began to be borne in upon us that these bodies we were dealing with were not just complex assemblies of cells, tissues, organs, and systems, driven and determined by their parts; we came to realize more and more, as we lifted our tired eyes from the microscopes and looked out past rows of test tubes, that these bodies belonged to *people* who lived complicated lives among other people, and that they used and abused their bodies and the various parts of them in all kinds of ways. Standing before this new view of our problems we find at hand the new method, the new tool with which to carry on the attack; it was devised and developed by a man who began his medical research with the pharmacology of cocaine, who was among the very first to see how medicine had to expand, who became the Vesalius, Harvey, Pasteur, and Virchow of psychiatry: Sigmund Freud, the discoverer of psychoanalysis. The use of his method or a modification of it enables us to learn, from speech, gestures, and actions, the characteristic ways in which our patients use their bodies for work, for pleasure, and for the emotional expressions and communications which relate them to other people. In particular, we have learned a good deal about the enormously varied bodily expressions of emotion and their relations to some otherwise unexplained types of lesions, and about people's reasons for *wanting to be ill* or injured which compensate for the disadvantages, and about treatment directed at people's habits of misusing their bodies, instead of merely at the structural results or by-products of that misuse. This new and growing understanding, integrated with all the old and still-growing understanding, constitutes the field which is now called psychosomatic medicine, and which will in future, I trust, be simply and properly called *medicine*. So much for the broad outlines; but, you will want to know, in this expansion of the medical subject-matter, what becomes of the history, the physical examination, the laboratory work, the treatment in ward or clinic? Well, they expand also —not merely by addition of new elements, but by reintegration and embodiment of the advance in understanding. For one thing, the history and physical examination are *combined* to a greater degree than before. Good physicians always began to inspect the patient as soon as he came in, and knew that some bits of the history might be brought out during and after the physical examination, for various reasons. In psychosomatic examination, we are alert to all the hints of feeling which are in the patient's way of presenting himself and his problem; these concern us because his emotional attitude toward the physician is of first importance in understanding his trouble, in treatment, and in evaluating the results. We note his way of telling his story, the changes in voice, face, and gesture which have emotional meaning, the pauses, sharp changes in train of



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thought, corrections, contradictions; we ask ourselves 'How is he trying to get me to feel toward him? What does he want of me besides what he appears to?' in short, we are watching for evidences of ulterior motives, for indirect expressions, for hints, for underlying trends, as well as seeing what the patient intends us to. We let him tell his story in his own way; and this is less boring in psychosomatic examination, because his verbosity, circumstantiality, and seemingly irrelevant details now are seen to have meaning in the whole picture. The physical examination begins with the handshake when the patient enters; we can learn to tell a lot from this physical contact, beginning with what we already gather half-intuitively from it. When someone crushes your hand, you know at least vaguely that he has aggressive and domineering tendencies; and you feel at least vaguely resentful of being overpowered in this small way; but you probably do not wonder, unless you have thought about the intricacies of human expression, what timidity the hand-crusher is trying to conceal behind this bold front. Such timidity and its disguise may be highly important factors in his trouble. Our observations of facial expression, gesture, blushing or sweating, during the history taking are physical examination by inspection. We also watch for evidences of somatic muscular tension and relaxation; and in the formally physical part of the examination we ask the patient to relax, note whether he can, and what feelings or thoughts he expresses while trying, because people often use muscular tension to suppress painful thoughts, e.g., in gritting their teeth. We are, of course, interested greatly in autonomic behavior; and we note carefully the patient's emotional response to undressing, to being handled, being looked at, and any special reactions associated with the examination of particular parts and defects. Quite commonly the patient will be reminded of additions to the history at some part of the physical examination, and the connection will usually be interesting; often patients become considerably franker after they have undressed and relaxed—a sort of psychological undressing—and add to the history, or correct it, in highly significant ways. These are things which you have probably all noticed from time to time; the psychosomatic point of view endows them with full meaning, and integrates them with the other findings in our understanding as they are already integrated in the patient himself. From the psychosomatic point of view we are interested not only in the effect of emotional states on the commonly reported laboratory findings, such as blood and urine sugar, basal metabolic rate, and so on, but in the reactions of the patient to the associated procedures, such as being stuck with a needle, having to breathe with a slight effort through the mouth while the nose is fastened shut, having to lie quiet for some time. These responses indicate to us the presence or absence of anxieties which may be of great importance in the understanding and handling of the patient's troubles. There are some people, for instance, who actually rest less if they are kept in bed than if they are allowed to be up and about a little; they have intense anxiety expressing itself in mild agitation, and if they have to be quiet they just 'burn up' internally. Sedation helps these people sometimes, but psychotherapy directed at the sources of the anxiety is the treatment of choice. Psychosomatic therapy consists, in general, of treating the patient's habitual misuse of his body along with the treatment of the resulting lesions or intercurrent diseases. Such misuse, no less than normal use, achieves something of value for the patient; this is a point which must never be overlooked. Psychotherapy, then, must help the patient to find other methods, other aims, which are less costly and harmful and more valuable, which we call *normal*. As the patient talks more or less frankly about himself and his troubles, the comparatively unbiased psychotherapist is able to recognize and call to his attention repressed wishes and tendencies which he has unconsciously been gratifying to some extent by the very behavior or symptoms of which he complained; this gratification is his gain from the illness. When the patient becomes aware that he is largely or entirely producing his troubles himself to satisfy previously unconscious needs, he is in a position to substitute methods or aims which are more reasonable, less costly, and altogether far more satisfactory to him and to others around him. In many cases he gains this awareness quite readily; these are cases which will eventually constitute *minor psy-*

—Continued on page 172.

THE ONLY WAY

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HEAT: Increases Blood Flow, bringing additional oxygen and repair material; carries away products of metabolism.

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Heat is useful, after subsidence of blood extravasation and acute inflammation, in the treatment of contusions, sprains, bursitis, chronic backache, synovitis and tenosynovitis due to trauma.

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Provides Four Methods of Application—Cable, Pad, Cuff and Drum; also minor Electrosurgery.

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"TOO LITTLE and too late" can be as disastrous in therapy as in warfare. This, it is now realized, is especially true in nutritive failure, where frequently it is too much to expect that a balanced diet alone will not only supply the patient's daily requirements but will also be able to compensate for deficiencies of long standing.

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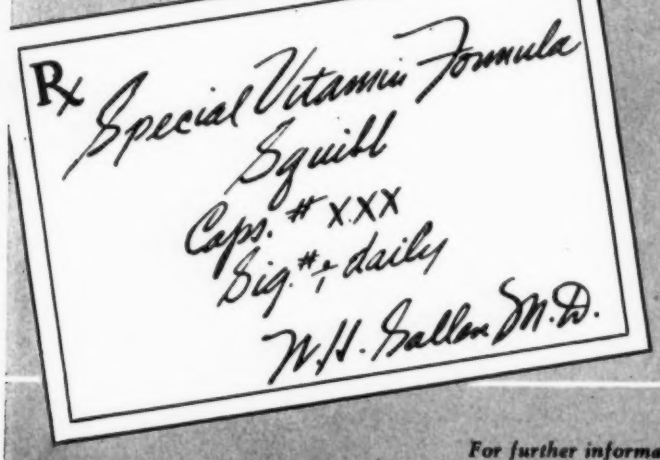

Each capsule contains:

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This magazine is published to promote sound thought upon and concerning industrial medicine and traumatic surgery. To that end it will contain articles, news items, reports, digests, and other presentations, together with editors' comments. The editorial policy is to encourage frank discussion. On this basis contributions are invited.

Industrial Medicine

Reg. U. S. Pat. Off.

The editors will exercise care in checking on the accuracy of data printed, but in all other respects articles and opinions of which expression is allowed are the opinions of their authors—the editors reserving in all cases the right to comment on the same, in the current or any subsequent issues, as they may be inclined.

The Journal of Industrial Health, Occupational Diseases and Traumatic Surgery

With which are consolidated "The Industrial Doctor" and "International Journal of Medicine and Surgery."

The Science, the Law and the Economics of Industrial Health

Volume 14 | February, 1945 | Number 2

Consolidated Vultee's Experience

—A Brief Appraisal of the Consolidated-Vultee Program for Job Placement, Physical Examinations, Protective Measures, and Routine Procedures—

A. C. DICK, M.D., *Medical Director*, and C. O. SAPPINGTON, M.D., Dr. P.H.

WHEN an employee enters an application for employment at Consolidated-Vultee, a regular placement program is carried out according to the following items:

1. A "screen" interview.
2. Coordination of employment factors with physical findings, which becomes a practical appraisal for the position.
3. The finding of a job which the applicant can do on a full time basis.
4. Supervision and operation of the plan by foreman.
5. Supervision under certain standard practices which are well known and understood; the re-classification examination can be made on request or otherwise, but the whole program must be administered firmly.

"Limited" means that no transfer can occur if kept in the same code; "unlimited" is given the hardest job that can be performed with safety. An important principle of the whole program is that there is a division of responsibility between the employment department, the medical department, and the foremen.

The job survey of physical factors (reproduced on page 82) is used in connection with the following classifications of workers:

General

A. INDICATES worker capable of heavy sustained labor.

B. Indicates worker capable of moderately heavy labor.

C. Indicates worker capable of light labor.

D. Indicates worker capable of very light labor.

Modification

WORKER with monocular vision or severe visual defect. (Should not work where eye hazards are present.)

2. Worker with severe defect of hearing.
3. Worker who should have partial sitting.
4. Worker capable of sitting job only.
5. Worker with poor coordination.
6. Worker with nervous instability.
7. Worker with sensitive skin.
8. Worker with one limb (amputation) or complete limitation.
9. Worker with hernia or tendency toward developing hernia. (Relaxed rings, large abdominal scars.)
10. Worker unsuitable for work around dangerous machinery.
11. Worker with history of back strain or injury.
12. Worker with chronic illness (heart trouble, kidney trouble, etc.)
13. Worker with aphrasic characteristics. (Senile.)
14. Worker with arrested tuberculosis, asthma, or chronic bronchitis.
15. Worker unsuitable for climbing (by reason of age, weight, or other factors).
16. Worker with partial hand or arm limitation.
17. Industrially blind.
18. Blind.

Pre-placement Examinations

ALL OF the above is carried out in conjunction with the usual pre-placement physical examination procedures, which may be summarized: (1) the prospective employee is interviewed in a general way and offered a job contingent upon his passing the physical examination; (2) the applicant goes to the examining room where he is examined and classified according to the code of the job placement program, or he is permanently rejected as unemployable; (3) if not permanently rejected as unemployable, the applicant goes to a final employment interviewer who has the last word on the actual placement of the individual in a job.

It is understood that there are many steps prior to and after this portion of the procedure, before the prospective employee is finally on the production line.

Because the labor code in the State of California holds the employer liable for the aggravation of any pre-existing condition, it is apparent that an honest and complete evaluation of the applicant's physical status be made and recorded properly in order that the company may have adequate information. Moreover, unsuspected serious conditions are frequently brought to attention and often can be corrected under certain circumstances before these conditions become major actualities. The carefully planned pre-placement exam-

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

JOB SURVEY OF PHYSICAL FACTORS DATE_____

PLANT No._____ DEPT. No._____ NAME OF DEPARTMENT_____ SHEET_____

SECTION OF DEPARTMENT_____ GENERAL FOREMAN_____ FOREMAN_____

JOB TITLE	PHYSICAL CODE No.	Is a man absolutely necessary?	Do You Consider Work To Be: Heavy?	Moderately heavy?	Light?	Very light?	Eye-sight Required: Good	Fair	Poor permissible	Are eye hazards present?	Hearing Required: Good	Fair	Poor permissible	Does Job Require: 100% standing	100% sitting	Partial standing and partial sitting?	Any climbing?	Working in cramped positions?	Can the Following People Be Used: Elderly men?	Elderly women?	One-armed workers?	partial limitation in one hand?	One-legged workers?	Blind workers?	Deaf mute?	Worker with nervous instability?	Worker with poor coordination?	Worker with sensitive skin?	ARE HANDICAPPED PEOPLE USED?

Insert "Y" for Yes, and "N" for No

ination is also of value in properly placing the individual in a job where he may be able to perform at maximum efficiency with a minimum risk to himself or to others; if carried to its ultimate conclusion, this phase will develop a source of labor supply from human material which under ordinary hiring methods would be rejected as unfit for employment. It is to be borne in mind, however, that the individual is to be fitted to the job and that it is not reasonable to make jobs simply to employ people.

Another advantage which has not yet been developed to its fullest possibility is the prospect of placing employees psychologically on jobs where they may be of use to the maximum of their efficiency; for example, an individual of obvious nervous temperament would be unsuited to a job as riveter because of the unusual amount of noise accompanying this operation.

It is the policy of the company that the pre-placement examination should under no circumstances be used as a tool or weapon against any actual or potential employee; this applies both to using the re-examination to cause discharge or the pre-placement examination to keep out a prospective employee, unless in fact the physical or mental findings are such as to make this action clearly reasonable.

Problems in Pre-placement Examination

PERMANENT REJECTIONS. The permanent rejection of any applicant should never be made if there is any possibility that a job can be found that the prospective employee can satisfactorily and safely perform. Certain conditions, however, are reasonable grounds for permanent rejection as follows: (1) pregnancy at time of hiring; (2) active tuberculosis; (3) active rheumatic heart disease; (4) cardiac or renal complication with decompensation, dropsy, or other positive evidence of late and serious complications; (5) mental disturbances of the manic-depressive type; (6) obesity of such a degree as to be a serious handicap and particularly in females over 40 years of age; (7) a combination of conditions such as would make an employee a handicap rather than an asset to production; (8) in the event that the examinee refuses to comply with the provisions of the pre-placement examination, inasmuch as it is a pre-requisite to employment.

Certain special cases in which exception may be made to the foregoing are sent as special problems to the office of the chief surgeon.

Temporary rejection: Naturally cases arise where prospective employees should be rejected temporarily in their own as well as in the company's interests. For the most part, these appear to be: (1) positive blood test for syphilis; the individual is referred to a private physician for treatment, and when the physician states that the case is no longer infectious and is under treatment, the applicant may go to work; (2) albumin or sugar in the urine; the applicant is referred to a physician for evaluation of this condition and at the physician's discretion may enter employment; (3) visual defects which would disqualify for a specific job; these applicants are also referred for proper advice and prescription, and, when glasses are properly fitted, may assume work responsibility; (4) possible contagious or communicable disease; such cases are deferred until a diagnosis is made or the infectious period has passed; (5) question of active tuberculosis; the individual obtains at his own expense an x-ray of the chest for submission to the office of the chief surgeon who will decide whether the condition is active or not; (6) bodily filth or verminous condition which there is reason to believe will be corrected; (7) abdominal scars, varicose veins, hernias, and other similar conditions which, in the judgment of the examining physician, need corrective measures or prosthetic appliances before reporting to work; and (8) any other condition or combination of conditions, either physical or mental, which in the opinion of the examin-

ing physician warrant further investigation either by the examining staff or the individual's personal physician.

Questionable conditions: (1) Illiteracy is not a bar to employment if not due to mental deficiency, and if there is a job open that an illiterate may perform; (2) vision requirements must be very flexible, as there may be a job which can be satisfactorily handled; if an individual fails to pass the visual requirements for a specific job after the best possible correction, the interviewer should assist in finding some other job; (3) deaf mutes and midgets may be very useful if mentality is normal; (4) limitation of motion, loss of eye or limb, should be carefully recorded in writing, including degree of limitation in all affected joints and exact measurements of the points of amputation when this is found; (5) heart conditions should be diagnosed as either functional or organic; if functional the question of a neurotic background should be considered; if organic the type of job must be considered as well as the presence or absence of positive signs of late and serious complications before permanent rejection is made; (6) naturally there will be other types of problems arising, but the criteria of decision for rejection or acceptance must include the principle that for the duration of the war anyone who is willing and capable of working should be allowed to do so, provided he understands the risks of his occupation.

Personal problems involving examinee: (1) A pelvic examination is not to be performed on a minor female without parent's or guardian's consent; (2) pelvic examination need not be done on adult females unless there is a specific question of job placement; (3) if a female applicant refuses an indicated pelvic examination by the examining physician, a report from a gynecologist will be recognized and should be attached to the physical examination form—this should be obtained at the examinee's expense; (4) it is mandatory to record on the lower portion of the examination record a statement of a female applicant's menstrual problems or lack of them; (5) any minor, male or female, under the age of 21 years, must as a requirement of employment bring in and make a part of the permanent medical records a standard release form signed by the parent or guardian; and (6) any agreement between the examining physician and the examinee concerning the use of prosthetic appliances, trusses, glasses, and similar devices should be recorded on the lower half of the examination form under the heading "additional information and remarks" and should be placed there before the examinee signs the lower sheet.

Re-examination Procedures

THREE types of re-examinations are performed as medical division procedures: (1) re-examinations for personnel handling toxic products; (2) special re-examinations performed at plant hospital; and (3) general re-examinations.

For personnel handling toxic products: This procedure is a part of the system of toxic products control. Each toxic product is evaluated, giving consideration to precautions necessary for its safe use. Plant personnel who use such materials are scheduled through the laboratory of Plant No. 1 Hospital for routine tests at proper periods to anticipate any toxic reactions before they become serious.

If any employee shows manifestations of toxic effects on such an examination, he is referred to the plant doctor on whose shift he is working so that a more thorough examination may be made. If the plant doctor feels that the employee is actually in danger and should be removed from exposure, he issues an order to the general foreman concerned and explains the request for a transfer. Although a phone call from the doctor to the foreman may be helpful, it must not be used as a substitute for the order which should contain the length of time the transfer is needed if it is possible to estimate it. Copy of the request for transfer should also be filed in the employee's medical folder.

If further re-examination of an employee thus transferred is indicated, this information should be established by a "tickler" file. When this examination is made, if recoding is indicated, the procedure is to be referred to the staff assistant in charge of job placement program whose duties are noted later.

Among the special *re-examinations* performed at plant hospitals are the following:

Crane operators: At intervals of twice a year all crane operators are given a careful examination, including blood pressure, urinalysis, and other indicated laboratory findings. Attention is directed to ascertain changes in the nervous system which might affect the reflexes. Particular attention is given to eye testing using special apparatus for depth perception as well as near and far vision and color perception. In case a crane operator fails to pass the requirements, an order is issued to his general foreman stating that he should be removed from the crane operating job until the condition can be corrected, or if that is not possible, he should be transferred to another job—copies of all such statements being a part of the employee's medical file. Any liaison work should be handled by a staff assistant in charge of the job placement program.

Foreign service personnel: In case of employees who are sent to foreign service posts, a complete physical examination including x-rays of the chest and the sinuses, electrocardiograms, and complete laboratory work, is done regardless of other examinations made, unless the same ground has been covered. In addition, the employee is given inoculations against typhoid, typhus, cholera, yellow fever, smallpox and tetanus.

The completed examinations, including the vaccination chart, are reviewed by the chief surgeon and a letter is then written by him to the foreign service representative stating one of three things: (1) that the employee may proceed unqualifiedly; (2) that after certain treatments he may proceed, or (3) that his physical condition is such that it would be inadvisable for him to do foreign service.

If any conditions are found which would limit the employee to certain localities, it would be reasonable to allow the employee to go to foreign service providing he remained within the designated area.

High altitude laboratory personnel: Those employees engaged in work involving the use of high altitude chambers, and all flight personnel requesting examinations, are given them before going into this type of work. This includes complete laboratory and x-ray work, as well as electrocardiographic tracings. Such examinations are ordinarily made by the physician in charge of the program, but other staff members may be needed at times.

Re-examinations are done at various intervals for the purpose of determining whether changes occur.

Request re-examinations.

Routine cases where change of classification or transfer may seem indicated.

Examination for return to work after illness, injury, or surgery.

General re-examinations: From time to time the original assignments which have been made in the job placement program may need to be changed because of changes in individuals or because of request, either by a foreman or an employee; also there are older employees who were not examined under the original program and whose physical fitness may have undergone a change and, third, there are employees who may have suffered illness or injury or will have had surgery performed, which might require assignment to a different type of work than originally planned.

In all such cases, when request for re-examination originates with the foreman, department head, interviewer or medical division, the examination must be made on company time. In the event the request originates with the employee, it should be done on employee's time either before or after regular shift.

The following general rules are mandatory and cannot be changed except where the examining physician feels there may be circumstances permitting such change; under such conditions a statement is made a part of the permanent medical records of the specific employee and is signed and dated by the physician:

(a) Any employee having been absent seven days or longer with a condition involving the lungs must have an x-ray of his chest at Plant No. 1 Hospital. This also includes other cases which may come to the attention of the medical division, when a chest condition may be suspected. Such procedures should be done preferably before the employee returns to work.

(b) All cases of contagious disease should bring a release from the health department to the plant hospital before returning to work.

(c) In cases where major surgery has been performed the discretion of the attending physician is the criterion for the time of return to work. Leeway of course can be allowed in clerical or office help because these jobs do not ordinarily demand standing, climbing or lifting. On these and similar factory jobs, under most circumstances, 30 days post-operatively will be adequate. On most other limited factory jobs for women, 60 days should be adequate, but on unlimited factory jobs for women it has been found that six months should be given. Generally a shorter time is indicated for men. The general foreman must be notified in writing, and also advisably by telephone, when there is any alteration in the time of return to work, to prevent the possible termination of an employee absent because of illness or because of advice by the medical division. Representatives of the employees' activities committee should also be notified in each case.

(d) In postnatal cases where the previous employee desires to return to work and her attending physician states that there has been no pelvic or perineal damage, the examining physician shall make the decision. In normal, uncomplicated deliveries, in clerical and office type jobs, four weeks should be the minimum time for return to work; on limited factory jobs, six weeks; while those on unlimited factory jobs may require recoding or transfer to a lighter job for a period of time to be determined by the physician at the time of his re-examination.

(e) On all re-examinations when a condition is found which may affect the physical coding of the individual this change must be noted and placed upon the employee's second sheet. The actual handling of this phase will be done by the staff assistant in charge of job placement program. The examining physician is responsible for advising the staff assistant of this matter.

(f) Statements containing information from outside physicians should be cleared through the medical division. Compliance or non-compliance with requests or suggestions is a matter for the examining physician to determine with the assistance of the employee and foreman—this latter assistance being cleared through the staff assistant in charge of the job placement program. Wherever possible the outside physician's letter of suggestion should be acknowledged, particularly if staff opinion differs from his, in which case, without divulging any confidential information, he should be advised of the difference and the reason therefor.

(g) Great caution must be observed when a request comes from a foreman to determine whether or not an employee may be insane. If it appears that there is evidence of shirking of responsibility or supervision on the part of the foreman and that he wishes merely to get rid of the employee, the case should be immediately referred to the chief surgeon. If, however, in the opinion of the examining physician, the employee is in fact insane, a reply on appropriate forms should be sent to the general foreman containing only the following statement: "This employee, after careful examination, is found to be unemployable." Further discussion should be referred to the chief surgeon. If it is felt by the examining physician that the employee is definitely malingering or that he does not meet physical requirements, the information should be forwarded at once to the office of the chief surgeon.

(h) Pregnancy cases require a report by the individual affected to her foreman or counselor that she is pregnant. The employee is then referred to the plant doctor who advises her to bring a letter from an outside physician that she is under his care. The type of job she is then doing is evaluated and, if safe, she is allowed to stay until the end of the sixth month, unless she is losing too much time from production, in which event she is terminated by her foreman. A list of unsafe jobs is in the possession of each plant physician and, if the woman employee is found to have one of these, a job change request is sent through in the usual manner.

(i) Other contingencies which may arise during the course of any re-examination are the responsibility of the examining physician properly to evaluate and decide. He may at any time request whatever specific consultation, special tests or advice on matters of policy and precedent he may require. In general, the policy on all re-examinations is to weigh the company's obligations to the employees against the primary obligation of maintaining production and, therefore, any decision should be toward the end of placing an employee where he may be of maximum value to production without undue risk to himself. Any time an examining physician feels the general interest of the organization will be served by a personal contact between himself and the foreman, he is urged to make it. It is highly desirable personally to contact or phone the foreman and mandatory to sign the appropriate record form.

Staff Assistant in Charge of Job Placement

IT HAS been found that a staff assistant in charge of the job placement program can render invaluable service in many ways. The duties of this staff assistant are as follows:

1. To obtain from all foremen in all departments, and to maintain in an up-to-date manner complete job descriptions and codes, and to supply the examining

physicians and the employment office staff with whatever information they may require on this phase of employment.

2. To continually make his services available to all foremen so that job changes or department changes may be quickly noted for all interested people.

3. To act as liaison between the medical division and the foremen in all matters pertaining to job codes, physical classification of employees, transfer requests and suggestions from outside or plant doctors to foremen.

4. To obtain from foremen for the use of the examining physician any pertinent information bearing upon the re-examination, re-classification or transfer request of an employee.

5. To investigate and report upon all suggestions relative to employees, sent in by outside physicians. This report should be made to the plant physician in the plant and on the shift where the employee is working.

6. To assist the employment department in any way helpful in the proper placement of new employees examined at the employment office.

7. To investigate and report upon all medical division suggestions for transfer or re-classification of employees, and to determine that the suggestions of the medical division have been followed. This report is to be made to the physician signing the request. In the event any department may refuse to honor a request from the medical department, he is to report this fact with all pertinent information in writing to the chief surgeon.

8. He will be responsible for ascertaining that any change in the physical status of an employee is recorded upon the employee's second sheet. In this capacity he will work with both the employment office and the employment record section. The plant and examining room physicians will cooperate by notifying him of any such changes made by them under any of the procedures outlined previously.

9. It will be his obligation in any training course within the plant, where teaching the mechanics of the job placement program is in order, to do so.

10. To maintain friendly relations with rehabilitation organizations and the U. S. Employment Service to the end that all parties understand the problems involved in employing physically limited people.

11. To arrange for visits to the plant by outside physicians from the community so that with proper explanation of company problems and programs their services to the employees may be more intelligently administered.

12. He is responsible in all activities to the chief surgeon of the division.

Comments and Results

IT IS believed that placement will become a permanent part of an industrial medical program, and that it will pay. Some difficulty is anticipated with psychosomatic cases; in this respect probably a deadline should be set after an experimental period of six months—then consideration of compensation versus lump sum should be given.

Accidents. The company has experienced one of the lowest accident records in the country, probably on account of the emphasis placed on the foreman supervisory-job placement program, which is carried out from furnished data. Company records show that there are 1200 accidents causing lost company time to one in which the time of the individual is lost; probably this is because of the habit of trying to keep "lost time" down. There appears to be a big story here regarding the question of what constitutes "lost time."

Employment of women. For women employees and prospective women employees, it is particularly emphasized that "this is your job—you can do a great deal to make it what you will and advance." Thus the *possessive* idea, which is of great appeal to women, is used with particular effectiveness. It is believed that restrictive legislation probably causes a considerable lack of employment of women. Especial efforts are maintained to double supervision on women, particularly those who are pregnant.

Occupational disease cases. In the use of 64 different materials, no toxicological cases have occurred in company experience within a period of two years. This has been partly accomplished by obtaining a notarized letter, with formulae, from the manufacturer. By purchasing the least toxic compounds, the incidence of toxicological cases has been cut down 85%. No changes of formulae are permitted unless the medical department is notified. All changes of processes within the company are subject to notification. A constant toxicological laboratory check and periodic check-up of exposed employees are also maintained.

Dermatoses. The company experience shows approximately 50 cases of industrial dermatoses occurring in a plant population of 30,000. Apparently chromates are responsible for 90% of these cases. A thorough cleanliness program is in effect and particularly noted is care of the skin, use of clean clothes, and weather changes. No great significance is attached to the patch test which is believed worthless except in a very few instances. Improvements in plant housekeeping have resulted in lessened incidence of dermatitis through unconscious increase in cleanliness of employees.

Minor injuries. The average employee works for a period of approximately two and a half months before applying to the dispensary for the treatment of a minor injury. This is believed to be due to the constant and well organized program of supervision, especialy by foremen. The usual technique for the treatment of minor injuries, such as lacerations, abrasions, and similar ones, is cleansing with soap and water, the application of dry sulphanilimide powder and a dry dressing. Of these types of injuries, approximately 80% have one dressing, and 20% are seen an average of only 1.4 times, with a resulting saving of $261,000 annually over treatments of other types. In this program, the (1) dressing of finger wounds; and (2) recording of these injuries give no financial return; however, (3) an analysis of the record is what pays when the results of the analysis are put into operation.

With a recorded saving of $485,000 a year on a department cost of $600,000 a year, the profitable operation of a plant medical department ceases to be a question.

Philosophy: Basis: Methods

THE JOB placement program above-described was conceived at a time when necessity demanded the employment of many individuals who prior to this war would not have been considered acceptable as factory employees. That war production has proceeded as well as it has is proof of the fact that we long have had a misconception of the value of a so-called handicapped employee, and that this misconception probably arose from the fact that we had an adequate number of "normal" people, and thus did not give due consideration to the problems of the handicapped.

One of the striking things brought out by this placement program was that skilled and experienced workers of the normal variety required more re-exam-

inations and transfers because of breakdown or failure on the job than did the less perfect individuals who had been scientifically coded and placed. Furthermore, the productive rate of properly placed, although handicapped, individuals was above the average, and their turnover, absentee and accident rate was lower.

Noting these facts caused us to feel that a placement program was in order for all employees whether normal or limited.

At this time our philosophy on job placement is predicated on the following beliefs:

1. That any employee will work more effectively if he is placed on a job which is the most arduous he, as an individual and within his limitations, can safely and continuously perform.

2. That the proper placement of an employee is a valuable tool and responsibility of supervision, and for this reason should be administered by the foreman.

3. That simplicity of operation is not only important per se, but subjective qualifications are of necessity a part of the picture, and, so, absolute perfection of placement can never be attained. Thus, while one job may differ slightly from another, it is convenient to group together in one classification jobs which are roughly similar in physical and emotional requirements so that the program may not become top heavy and cumbersome through attempting to evaluate and differentiate minute differences of capacity.

4. That once such a program is conceived it will operate best by utilizing within the plant the functions of organization which already exist, such as the employment department, the medical department and the foremen. It is not necessary to establish a separate group to administer a job placement program.

THE objectives of such a plan grow out of its basic philosophy. They are again:

1. That the productive capacity of any person with any conceivable limitation, if he is capable of working at all, is increased in direct proportion to the closeness to his ultimate capacity his given job brings him.

2. That the foreman will be a better foreman if he understands and administers such a program himself.

Since this procedure would be arbitrary if it were carried out coldly in accordance with the opinions of management, it is also our object to have this program be fairly administered. This is brought about by making it possible for either the foreman or the employee to object to his classification and to have a re-examination and re-classification at which time the employee is free to give his opinion as to the manner in which he has been classified.

THE methods by which this plan is put into operation are as follows:

1. An evaluation is made of all jobs in all departments from the standpoint of the physical and psychological factors involved in the satisfactory performance of this job. The foreman himself makes these evaluations in his department, with the assistance of a trained analyst. This is done on the form, Survey of Physical Factors (see page 82). A complete code of all the jobs in this department is then given to each employment interviewer and all departments are thus entered in the interviewer's departmental code book.

2. The second step is in the pre-placement examination, where an honest evaluation is made by a physician of a prospective employee's physical and emotional capacities and limitations. This in turn is reduced to a code.

3. With very little training the employment interviewer, using the foreman's code book and filling job requirements on the basis of requisitions by code, is able to screen applicants for jobs to over 98% accuracy.

THIS explanation of our job placement program has been given because it will be used as a basis for any program for the re-employment of veterans.

While it is entirely probable that the veterans will, for a time, present many special problems, the fundamental objective in any program for re-employment or rehabilitation is to return these people to a normal world. Thus, it seems psychologically sound to include the re-employment of veterans as a part of a program intended to facilitate the effective employment of either normal or limited persons into a normal work program. To have a separate and distinct program for the rehabilitation and re-employment of veterans would set them apart and would tend to militate against their rapid return to a desirable position in society. Such differences of physical limitation and emotional stability as will be represented in any group of returning veterans are at the most merely exaggerations of phenomena which have already been successfully handled under this program.

Thus, a veteran of this company returning for employment would be examined and placed on a job in accordance with his particular limitations in the same way that a prospective employee who was not a veteran would be handled.

Since a good job placement program is intended to find a job for any person with any given limitation and is not intended as a method of keeping limited or handicapped people from working, it is easy to see that special legislation concerning the re-employment of returning veterans, and particularly in connection with conditions of terminations of employment, would be abetted rather than otherwise.

Only one slight difference in the application of this program to a veteran would be included. That would be a positive recognition, both on the part of the employer and the returned veteran, that, as a result of his service in the armed forces outside of this country and under hazardous conditions he might conceivably require a certain period of time to re-adjust his emotional life to that of the society to which he has returned.

It is reasonable to assume, with proper supervision, that the returned veteran would be in a reasonably normal condition within a period of six months after his return to industry. It is only in this period that he will or should receive additional consideration for requests for job transfers beyond the average for the non-veteran group.

It appears to be sound psychological prudence to establish a time limit for recovery so that there is a positive and definite goal for both supervision and the returned veteran to attain.

It is entirely possible that the continued existence of "shell shocked" veterans of World War I is due to the fact that no one has thought to tell these people that they were well.

Summary and Conclusions

A JOB placement program to be effective should be integrated into supervision.

2. It must be simple and understandable as well as flexible.

3. It should not attempt, except as part of a research problem, to go beyond a reasonable point in differentiating one job from another on the basis of minor variations either in factors of the job or in

limitations of the individual, inasmuch as the margin of error in establishing such standards is too great.

4. Since it is reasonable to assume that industry will be held responsible for the successful re-employment of approximately 25% of all returning veterans, it would be desirable to standardize industry's methods and approach in this problem. To date there is little evidence that this is being accomplished.

New Union Health Plan

—Joint Board of Dressmakers, I.L.G.W.U.—

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EYESIGHT conservation for 60,000 dress workers in New York City will be the first concern of the Health Fund of the Joint Board of Dressmakers of the International Ladies' Garment Workers' Union. In addition to eye care, the new health program, which began operation January 1, provides cash assistance of $12 a week for a period of 13 weeks in the event of disability due to illness; $3 a day up to 25 days if members are confined to a hospital; a $250 payment, or admission to sanatorium, for any worker who develops tuberculosis; and ambulatory medical service primarily of a preventive character up to $15 at subsidized rates.

The eyesight conservation program will begin by examining the vision of all workers in the shops through a rapid screening method, using the telebinocular to select those workers who unknowingly suffer defective vision or eye-strain. All workers found to have any defects will be referred to eye specialists at the Union Health Center for thorough examination. The eye doctor, after completing the examination, will recommend the prescription eyeglasses, medical treatment or muscle exercises he finds necessary. Well-fitting spectacle frames with the best quality lenses suited to the working needs of the dressmakers will be provided, in addition to the specialists' services, without direct cost to the workers needing such aids.

There is nothing new about the telebinocular test for workers' vision. When there was no manpower shortage it was used by some concerns to eliminate workers with eye defects from the factories. The unions use the instrument to aid their members who have defective vision to improve their eyesight so they can produce more advantageously, thus increasing their own earnings and the production of the shops in which they work.

The cost of the program is being borne by the employers of the garment industry who now provide the funds to expand a health program inaugurated by the workers themselves. Since 1913 International Ladies' Garment Workers' Union members have enjoyed the advantages of health services on a low cost basis subsidized by the union. In that year the Union Health Center, which will direct the medical aspects of the expanded program, was founded. It is an ambulatory clinic, employing about 100 physicians to treat union members with slight defects before they develop into serious and disabling illnesses. This institution now occupies 20,000 square feet on two floors of the building at 275 Seventh Avenue, with 24 examining rooms, a well-equipped laboratory, pharmacy, optical department, electrocardiograph and x-ray services, and physical therapy facilities for the provision of complete ambulatory medical service for garment workers.

The Union Health Center handled about 126,000 visits for medical services in 1944, an average of 450 a day. During its busiest day, in May, at the height of the preventive hay-fever treatments, it rendered medical services to 714 cases. In the expanded program now under way the Center looks forward to as many as 2,000 visits in one day.

The 60,000 dressmakers are not the only International Ladies' Garment Workers' Union members with an extensive medical program. About 100,000 other garment workers are covered by health insurance. Some local groups of the International offer surgical benefits, some offer maternity benefits, others give convalescent care, home visiting-nurse services and life and dismemberment insurance.

THE Union Health Center's experience with small union groups shows that when industrial workers have an opportunity to get medical services for which they do not have to make any direct payment they take much better care of their health. In one instance when a local union offered its members free medical care, the visits to the Center from this union increased 280%. In another case where free service at the Center was put at a local's members' disposal, usage increased as much as 600%.

The Center has found that when medical services are available and the workers have no fear that their use of the medical facilities will result in jeopardizing their jobs, they will take advantage of medical care. These findings are contrary to the opinions of some industrialists who say that workers will not take advantage of industrial medical programs.

The Center believes this wide usage is due to the fact that the programs are operated in most instances, although not in all, in cooperation between management and labor, with the employer contributing for the services which the union administers. In other large industrial medical plans the workers often pay for the services and the management operates the plans.

The eye-screening survey now under way has been preceded in previous years by several tuberculosis mass surveys whereby thousands of workers in the garment industry received x-ray examinations. Rapid screening methods selected the suspicious cases, which were then given thorough medical examinations to verify the suspicious findings and help the workers effect a cure. The union maintains beds in three different tuberculosis sanatoria in the country.

In the same manner the eyesight screening survey will result in lasting good. The Center conducts morbidity studies with the aid of International Business Machines, and compiles medical data about the patients it serves. It reports that 6,100 abnormal eye conditions were found among its patients in 1943. About 4,000 of these were errors of refraction for which corrective prescriptions were issued and eyeglasses made. A break-down of these prescriptions shows:

Presbyopic cases with astigmatism and also near-sightedness or far-sightedness	63.75%
Simple near-sighted cases, and those with near-sightedness and astigmatism	17.00%
Simple far-sighted cases and those with far-sightedness and astigmatism	11.00%
Astigmatism alone	5.00%
Others	3.25%

It also reports in this year 1,630 cases of inflammatory conditions of the eyes and eyelids, 154 cases of cataracts, 30 cases of glaucoma, 55 corneal ulcers and other serious disorders of the organs of vision.

The majority of the prescriptions issued were for presbyopia, which usually occurs in people over 40 years of age. Although the greater proportion of the workers in the garment industry are younger women, more workers in the older age groups sought the advice and care of the eye specialists at the Union Health Center. The survey will be useful in finding the numerous cases of defective vision in the younger people who are not aware of their visual defects. This supports the union's policy of providing preventive medicine by making sure that all union members have the asset most needed in the garment industry—good eyesight.

The employers contributing to this program will receive a worthwhile dividend in lower rates of absenteeism due to illness, and an increased capacity for productivity through the improvement of the health and eyesight of their employees.

The Industrial Dermatitis Problem

—A Practical Approach—

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THE WORD "problem" seems to fall in naturally with the term "industrial dermatitis." Industrial dermatitis is universally recognized as a problem, but if the reasons for its presenting such a problem were as *generally* recognized, the solution would be much nearer at hand.

The effective attack upon this problem depends upon the attainment of two related objectives: accurate diagnosis by the medical department and preventive measures by the safety engineering department. By the accurate diagnosis of industrial dermatitis, I mean the definite determination of whether or not each case of skin disease occurring among industrial workers is of occupational origin, and, if so, the identification of the exact cause. If the plant physician knows what he is talking about, then the safety engineer can do his part effectively, but much better if he *too* understands what the physician is talking about.

The intent of this discussion is not to make diagnosticians out of you, but rather to familiarize you with the diagnostic problems to a sufficient degree to render your problems of prevention more lucid.

In the first place it is important that you be able to form some idea as to whether or not the physician *does* know what he is talking about. Obviously, if the physician, through laziness, lack of astuteness or some misconceived sense of charity, reports as industrial, cases of dermatitis which are non-industrial in origin, not only will the worker fail to benefit but the safety engineer also will be off on a wild goose chase. On the other hand, if the physician mistakenly thinks that he is doing his employer or the insurance carrier a favor by maintaining that a case of industrial dermatitis is not such, the worker, and probably others, may become disabled and the safety engineer will have missed the boat. For his own protection, then, the safety engineer should be conversant with the problems of diagnosis.

To be conversant, he must know the language, and the first word is "dermatitis." It is frequently confused with "dermatosis" (plural "dermatoses"). The distinction is definite: a "dermatosis is a skin disease, any kind of skin disease, whether it be dandruff, skin cancer, flea bites or poison ivy; a "dermatitis" (when not otherwise qualified) is a certain type of dermatosis which is inflammatory in nature and usually due to local irritative, rather than infectious or constitutional, factors. There are industrial "dermatoses" other than "dermatitis," such as skin cancer due to occupational exposure to pitch and sunlight, or blackheads and pimples due to exposure to oils, but, with the exception of the latter, "contact dermatitis" constitutes almost the entire dermatologic problem in the industries employing the vast majority of workers.

Nature and Types of "Contact Dermatitis"

THE mechanism of "contact dermatitis" is always by way of actual contact of the skin with a causative agent. Such causative agents act in one of two ways: either as a primary irritant like strong acid or alkali, which would cause an eruption on anyone's skin; or as a "sensitizer," like certain metals and resins, which would not affect anyone's skin unless he had been previously and specifically rendered "sensitive" to it.

The phenomenon of "sensitization" deserves special attention because its vagaries are responsible for most of the really knotty problems in the field of industrial dermatology. The mechanism of its development is not clearly understood but many characteristics of its behavior are well recognized. The outstanding and identifying peculiarity of the sensitization type of contact dermatitis is that it is caused by contact with a substance which the individual has previously handled with perfect safety for a variable period of time, and which the majority of other workers continue to handle without injury to themselves. This will be discussed in more detail later.

Contact dermatitis of either type is never caused by, and rarely accomplished by, absorbtion of the causative agent "into the system" by way of lungs, stomach, skin, etc. It is important to understand that it is almost always purely an external problem, as is an acid burn or a "case of poison ivy." Its most common appearance is in the form of what is called an "eczematous dermatitis." This may be acute; that is, of sudden appearance and comparatively short duration, consisting of bright redness of the skin with swelling and sometimes blister formation. Or it may be "chronic"; that is, of comparatively long duration, and consisting of dull redness and thickening of the skin, often with the formation of scales. Contact dermatitis characteristically begins and is most active in the skin areas of maximum exposure to the causative agent.

When the physician first makes a diagnosis of "contact dermatitis," he has yet to determine whether or not the case is of industrial origin; and, if it is, he must determine the exact cause before the safety engineer can act. In determining these points, he is confronted by a much more difficult problem than in the case of an industrial accident. When an accident occurs, it is usually fairly obvious from the nature of the injury, the account of the episode and the testimony of witnesses, that the injury was sustained at a given time and place and under circumstances which would determine whether or not it was of industrial origin. In the case of a sensitization dermatitis, however, the onset can rarely be dated accurately and, even if it is, there may be no correlation between the time of onset and any change in work type or habits. This follows from the previously mentioned fact that sensitization dermatitis appears after a variable period of uneventful contact with the causative agent.

Furthermore, the appearance of the dermatitis usually gives no clue as to its cause. The skin has only a

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limited variety of ways and degrees of reacting to irritants and sensitizers; and, although there are a few substances which call forth fairly characteristic types of reactions, the vast majority of contact eruptions could be caused by any one of an enormous variety of substances, industrial or non-industrial.

Criteria for Determination

DEPRIVED of help from the story of the onset and the appearance of the eruption, the physician can rely on only a limited group of criteria for determining the industrial or non-industrial nature of the majority of cases. It is important that the safety engineer be aware of these; evidences in favor of the industrial origin of a given case of dermatitis can be summarized as follows, in order of increasing importance:

1. It first appeared at some time after the first exposure to the industrial contacts in question.
2. It first appeared and is most severe in the areas of maximum exposure to the suspected contacts.
3. It clears up or improves after periods of freedom from contact with the industrial exposures under suspicion, and re-appears soon after further contact with them.
4. Absolute proof of its industrial origin, however, awaits identification of the particular substance which is responsible for the dermatitis. This is usually done by "patch testing."

Value and Limitations of "Patch Tests"

WHILE it is usually impractical to eliminate individual contacts one by one from a worker's environment for test purposes, the worker can be exposed to them one by one, under test conditions, to see which is the one at fault. This is done by the method known as patch testing, which has been used and abused for many years.

The value of patch testing depends upon finding the causative agent and applying it to the worker's unaffected skin in a dilution which would not call forth any visible reaction in a non-sensitized individual, but still in sufficient concentration to bring about a visible response in a sensitized individual. This is often a ticklish job and calls for informed and experienced cooperation between the physician and the safety engineer; the former to apply and interpret the tests, and the latter to identify the possible causative agents and supply them in proper concentration for patch testing.

Useful lists have been published, giving proper patch test concentrations for hundreds of substances, but no list could possibly be complete and up to date for all occupations and industries. Still, it would be reckless to patch test indiscriminately with every substance suspected, without first knowing the proper strength for patch testing: too strong, it might cause a serious burn on anyone's skin, or at least a "false positive"; too weak, it would not identify itself with a positive reaction, and the diagnosis would be missed.

Because patch testing, properly performed and interpreted, is such an integral part of the final identification of the exact cause of sensitization dermatitis, and because such identification is necessary if further trouble from that cause is to be prevented, the subject must be closely studied.

A list of occupational contacts and exposures should be made for each department in each plant. These lists should be compared with already available lists of patch test substances, and those for which proper dilutions are given should be noted. Those substances which are not listed as having been previously studied, should be carefully evaluated before being used in routine tests. Who is better qualified to undertake this evaluation than the safety engineer? He should know or be able to determine what concentrations of the substances employed in his plant can be applied to the normal human skin under patch test conditions, without visible reaction. He should then make up samples of all of the listed contact substances in proper dilution for patch testing. The lists and the samples should then be available for diagnostic test purposes.

Approach to the Diagnostic Problem

LET US now recapitulate our approach to the diagnostic problems presented by industrial dermatitis:

1. The physician must first recognize the dermatosis as one which *could* be caused by an occupational exposure in the worker's environment; in most cases this means that he must recognize a contact dermatitis, usually of the sensitization type.
2. If the dermatitis has made its appearance or become markedly aggravated since the worker started in his current job, and if it has improved during short periods of work only to get worse again upon return to work, it is presumably of industrial origin and should be studied by the physician and the safety engineer.
3. If the dermatitis is due to a primary irritant, this fact should become apparent from the study of the worker's contacts by the safety engineer; no patch tests should be made with primary irritants.
4. If no contact with primary irritants is suspected or found, samples of other materials to which the worker is exposed, collected and prepared for the purpose by the safety engineer, should be applied as patch tests according to accepted technique and interpreted by the physician in the light of previous experience with the test substances.
5. If positive test reactions identify a substance as the probable causative factor, and if recovery from the dermatosis follows cessation of contact with that substance, a final exact diagnosis has been made.
6. If no positive patch tests are elicited, or if other inconsistencies complicate the picture, consultation with a dermatologist is in order.
7. If a dermatosis other than contact dermatitis is recognized, patch tests will be of no value. If the presumptive evidence, (as set forth in paragraph 1 and 2 above) is not sufficiently clear to classify it as industrial or non-industrial in origin, consultation with a dermatologist should be requested.
8. If consultation with a dermatologist is arranged, the safety engineer, as well as the plant physician, should participate. The consultant, unless he has had considerable experience with the dermatologic problems of the particular industry in question, will probably need information best supplied by the safety engineer; furthermore, it will devolve upon the latter to work out and apply protective measures if the dermatosis is found to be industrial in origin.

Appproach to the Problems of Prevention

IN DISCUSSING the diagnostic problems presented by the industrial dermatoses, we have considered the field in which the safety engineer can help the physician; in passing on to the problems of prevention, we approach the safety engineer's own field and hope that the physician can be the helper. Drs. Earl D. Osborne and James W. Jordan published in the October 28, 1938, issue of the *Journal of the American Medical Association*, an article on "The Practical Aspects of the Prevention of Industrial Dermatoses." I shall quote and paraphrase much of their material in an effort to clarify your problems of prevention.

In taking up this phase of the subject, I wish to re-emphasize the two mechanisms by which industrial dermatitis may be produced. These ways in which the causative agent may act, were referred to earlier as "primary irritant" and "sensitizing" action.

Primary irritants, such as strong acids, alkalis, metallic salts, certain solvents and cleansers, as well as heat, cold, etc., will cause a dermatitis on first contact in a high concentration, or prolonged contact in a weaker dilution. Sensitization dermatitis, on the other hand, is preceded by a well defined period during which the substance can be handled with impunity, unless in sufficient concentration to produce primary irritation; after sensitization develops, the subject reacts to a dilution of the substance in question, much greater than that necessary to produce dermatitis in a normal (that is "unsensitized") person.

Although this is a fundamental distinction of the utmost importance, there are many substances used in industry that are not only primary irritants, and therefore capable of producing dermatitis in normal persons, but are at the same time skin sensitizers capable, in minute amounts, of producing a sensitization dermatitis. Such substances are turpentine, formaldehyde, gasoline, chromates, alkalis and certain acids. Individuals who have suffered from a primary chemical irritation from such substances are more liable than others to develop a true sensitization dermatitis after repeated contacts with the chemical.

Prevention of Dermatitis Due to Primary Irritants

PRIMARY irritants, where no sensitization factor is present, exert their action on the skin by various chemical means. The type and degree of the r action depend upon the character of the substance, its concentration and the degree of exposure; different individuals do not all react in the same manner to a given irritant, as the reaction depends somewhat on the anatomy and physiology of various skins.

In general, the prevention of dermatitis from primary irritants depends upon the protection of the skins of all workers from contact with these substances in high concentrations or over long periods of exposure. Mechanical means of protection and education of the worker will usually suffice to prevent this type of dermatitis. Protection includes the use of acid-resisting and alkali-resisting gloves, aprons and shields; impervious pastes are sometimes of value. Adequate facilities for cleansing the exposed parts should be readily available. Education of the worker should consist not only of warnings against primary irritants he may handle in the course of his work, but also against agents ill-advisedly used to cleanse the skin after work; gasoline, turpentine, "thinner," and strong alkalis including certain soaps, have frequently been found to be the cause of the primary irritant type of dermatitis and sometimes result in the development of sensitization after repeated contacts.

Prevention of Dermatitis Due to Sensitizers

SENSITIZATION dermatitis can be produced by almost any chemical compound if the duration of exposure and the concentration are sufficient. With the rapid development of chemical research and the development of new chemical compounds, the number of these substances contacted at work and at home is becoming staggering. Naturally, certain industries present greater hazards than others; workers with dyes, formaldehyde, lacquers, turpentine, chromium compounds, nickel, resins and munitions are more apt to become sensitized than workers in other industries.

The prevention and control of sensitization dermatitis is the greatest problem that the industrial dermatologist and the safety engineer have in common. The development of severe sensitization dermatitis may mean weeks and months of disability, usually followed by the necessity of a change in occupation. The problem of preventing sensitization dermatitis resolves itself into four phases: (1) the proper selection of workers, (2) the elimination of unnecessary hazards, (3) the prevention of exposure to sensitizing substances, and (4) the early recognition of sensitization dermatitis and consequent prevention of further contacts with the substances having a high sensitizing index.

1. *Selection of workers.* Although it is well known that some persons become sensitized more easily than others, our limited ability to identify in advance the more susceptible ones leaves much to be desired. Age, sex, or color of skin, except possibly in the case of Negroes, is of little importance. In general, a dry skin is safer in industries where dusts and gases are prevalent, while moist skin is safer where liquid irritants are employed. The pre-employment performance of patch tests with substances to be handled is of no value whatever, because the worker never reacts to the first contact with a sensitizing substance unless it is used in primary irritant concentration, in which case all workers so tested would react; a period of 10 days to 10 years of contact may be necessary for the development of the sensitivity. The history of previous attacks of sensitization dermatitis or other eczematous dermatitis is of much more practical value because such individuals are much more liable to acquire further sensitivities than persons without such a background. Individuals with such a history, if that history can be elicited, should not be employed in industries using substances known to have a high sensitizing ability.

2. *Elimination of unnecessary hazards.* Many compounds with a high sensitizing ability can be eliminated in favor of less harmful compounds. Certain oils, accelerators, paint solvents, anti-corrosives, soaps and cleaners vary in their tendency to produce sensitization. It is well known that all persons become sensitized more readily by strong concentrations than by weak. Close cooperation between the industrial dermatologist, the safety engineer and the industrial chemist may make advantageous use of these facts in the elimination of unnecessary hazards.

3. *Prevention of exposure to sensitizing substances.* Many well known general preventive measures, such as closed methods of manufacture, employment of suitable exhaust hoods and proper plant ventilation, are of great importance in this respect. General plant cleanliness to prevent accumulation of sensitizing dusts and oil films on floors, work benches, pipes, ventilating fans and other machines, will do much toward minimizing contacts with these substances. Proper work clothing, including uniforms, gloves, aprons, armguards and visors which are impervious to the sensitizing substances, have often been found to be the most important factors in controlling sensitization. In other types of exposure, such as in munitions manufacture, proper cleansing facilities and methods have solved the problem. Instruction of the workers regarding the potential dangers of their occupation is of prime importance if any of the above preventive measures are to be put into effective use. It is difficult for the average worker to understand the mechanism of sensitization, but educational efforts have been surprisingly successful, and should be employed.

4. *Early recognition of sensitization dermatitis.* One or two weeks' delay in the recognition and proper disposition of a sensitization dermatitis may mean the difference between no disability and weeks of hospitalization. Any eruption of the skin of a worker with known sensitizing substances should be reported promptly to the medical department. The plant physician should determine at once whether or not he is dealing with a dermatitis which is probably industrial, and, if so, whether it is due to a primary irritant or to sensitization. If he is unable to do so, consultation should be requested. If the eruption is a sensitization dermatitis, no matter how mild, transfer to another job handling substances entirely different from that to which he has become sensitive should be effected. The substance should be identified by proper patch testing, so that adequate transfer can be assured. Close cooperation between the transfer-and-placement department and the safety engineer is necessary to assure placement of the sensitized worker in an environment free from the sensitizing substance.

In exceptional cases, such as workers who become sensitized to tetryl or other substances where the evidence of sensitization appears soon after the first contact, spontaneous desensitization frequently takes place. After suffering from a mild to moderately severe dermatitis for a variable period of time, some sensitized workers, if they remain on the job, become "hardened" to the sensitizing substance and the dermatitis disappears. This immunity is not permanent, however, as it is often lost during a two- to four-weeks' vacation, and has to be re-acquired on return to work. In my experience this so-called "hardening" has been the exception rather than the rule, and should not be awaited except in the case of substances which are known to behave in this manner. When sensitization to any one of the majority of substances takes place, further exposure will only intensify the degree of sensitiveness; in these cases, further exposure to the sensitizer, after the dermatitis has cleared, while off work, for instance, can be expected to call forth a more severe reaction than the first, and reaction to a weaker dilution of the sensitizer can be anticipated.

No method of decreasing a worker's sensitivity, once it has developed, has been successful. No series of gradually increasing dosages of the sensitizing substance, such as is sometimes effective in producing an immunity to so-called poison plants or weeds, has been applicable to the sensitization problems met with in most industries. Attempts to increase the worker's "general resistance" with vitamins, calcium, iron, etc., have not been shown to influence his specific sensitization reactions. In the case of certain industrial chemical contacts, however, the acid-alkali balance of the skin, as influenced by diet, has been shown to have some bearing upon the incidence of dermatitis from those chemicals, but, in general, transfer away from contact with the sensitizer is the only answer.

Of the four components of the prevention problem, only two are strictly in the safety engineering field, but those two are the ones to which we can look for the most help. It is apparent from what has just been said on the subject, that even the most careful selection of workers would rarely promise much toward the prevention of industrial dermatoses. The safety engineer's efforts, however, toward the elimination of unnecessary hazards and the prevention of exposure to sensitizing substances, as discussed above, are the most practical considerations in the prevention of these dermatoses. The early recognition of sensitization dermatitis is really the common ground between the physician's field of diagnosis, and the safety engineer's field of prevention.

Conclusion

THE practical approach to the industrial dermatitis problem, therefore, can be summarized as follows:

1. Exact diagnosis is the keystone: it is impossible to protect the worker from *all* industrial contacts, nor can workers be transferred and processes altered on the strength of a *guess* or an ill-considered medical opinion. It is imperative that every effort be directed, by way of cooperation between the physician and the safety engineer, toward determining definitely whether or not each case of dermatitis is of industrial origin and, if so, toward identifying the exact causative factor.

2. When the causative factor has been identified, and not until then, effective steps can be taken by the safety engineer to protect the affected worker from it and to prevent, in so far as possible, the development of similar trouble in the future.

Re-employment of Ex-Service Men and Women
IV. Placement and Follow-up

THIS is booklet IV of a series of five booklets dealing with the subject of re-employment of ex-service men and women.

The basic principles of sound employment technique are applicable in the re-employment of returned service men and women with the exception that it is essential that the veteran be made *to feel that he is returning to an organization of which he is a part* and that his reception be cordial and friendly enough to *prevent his feeling that he is being received as a stranger.*

He undoubtedly will expect a full and complete medical examination preliminary to returning to work; likewise, that the gap in his history, from the time he left the employer on a military leave of absence until his return, will be filled in by interview. This interview, however, should be on a friendly personal basis which will *make him understand that the employer is genuinely interested in him and what he has been doing,* rather than that it is a mere formality necessitated by red tape, of which he already has had a surfeit.

In the pages which follow, certain procedures are discussed which can logically be expected to apply to companies both large and small. The author would like to emphasize that while the procedures herein discussed are believed to be sound, they are not the only approach. They should serve, however, as a practical guide in assisting indi-

THIS, written by E. H. GROTH, is No. 4 of a series of booklets designed to familiarize the employer and his supervision with the problems and responsibilities incident to the re-employment of ex-service men and women. This series is intended to stimulate sound, constructive thinking and to guide a practical approach to the end that smaller industries may assume their proper role in affording every possible opportunity to our returned service men and women again to take their place in our industrial, economic and social life. The program suggested in these booklets is based upon the experiences and practices of companies having well organized personnel functions, and upon official interpretations of the law itself. These booklets include the following titles: No. 1, "Obligations of Employer" (INDUSTRIAL MEDICINE, October, 1944); No. 2, "Job Analysis for Sound Placement" (INDUSTRIAL MEDICINE, November, 1944); No. 3, "Medical Program" (INDUSTRIAL MEDICINE, December, 1944); No. 4, "Placement and Follow-up" (above); No. 5, "Training Methods." The author of this booklet, is E. H. GROTH, Industrial Relations Department, Eastman Kodak Company, Kodak Park Works, Rochester, New York.

vidual employers to develop plans to meet specific needs.

Administrative Responsibility

TO INSURE consistency of approach and to fix the responsibility for the program as a whole it is important that one individual be made responsible for carrying out management's policies, maintaining required records, and for adherence to the procedures established. Depending entirely upon the size of the organization, this may require only a part of the time of an individual or it may require the full time of one or several persons. This can only be determined in light of the need, but the best program may fail unless it is centrally administered.

Centralized administration in no way lessens the responsibility of the individual supervisor or detracts from his importance in the program.

Informing Supervision

OF FIRST importance is the necessity of fully informing supervision as to the company's policies and as to the procedures to be followed in the re-employment of returned service men and women. There are two compelling reasons for this:

1. Every veteran should be made to feel that he is among friends. Therefore, the supervisor who receives him must know who he is and something of his background. This may be automatic in small organizations, but in larger ones will require a planned approach.

2. Where there is a rehabilitation problem involved, whether mental or physical, or a combination, the success of placement will depend very largely on the understanding cooperation afforded by supervision. This will be particularly true in instances where a returned veteran is assigned to a job which at the moment he cannot fully perform, because of the therapeutic value of the work involved. Illustrative would be the assignment of an individual who had limited use of one hand to a job which required the use of that hand, with the expectation that by forcing the use normal function would be restored. Not only must the supervisor handle his own contacts properly, but his contacts, efforts, and thinking must be coordinated with the plan as a whole.

In small organizations where the policies and procedures are themselves simply arrived at, conversations between top management and the individual supervisors will constitute an adequate and effective supervisory training program in this regard. In larger organizations it will doubtless be found advisable to reduce the policies and procedures to writing, these written policies and procedures to be distributed among members of supervision or, and probably more effectively, used as the basis for one or several discussions to insure uniform understanding and also to make available the point of view of the various supervisors, which will prove very helpful. The important thing is that a coordinated program, regardless of the size of the organization, depends upon a full, adequate knowledge of the program in its entirety by all members of supervision.

It is also advisable that supervision generally be fully informed as to the legal requirements governing the employer's obligations to ex-service men and women. It is assumed that the policies will be established in light of these requirements. Nevertheless it is useful for supervision generally to have as full information as possible about the background of the policies.

Initial Interview

HOW the returned veteran is received, whether with stiff formality or with genuine cordiality and friendliness, is probably one of the most important steps in the entire re-employment procedure both from the standpoint of its immediate effect and from the long-range point of view.

The re-employment of veterans may be handled through the employment office or it may be handled outside of the regular employment routine. Whichever approach is used, it is suggested that an individual, or individuals, be made responsible for dealing with returned veterans, and that the procedures clearly differentiate them from new hires. Every person responsible for these interviews should be competent, thoroughly versed in the established policies and procedures, and should possess tact and diplomacy, together with a genuine interest in the problems involved. This centralizing of the interview incident to re-employment should not preclude friendly contacts between the veteran and other members of the organization.

The importance of the initial interview, therefore, cannot be over-stressed. In good employment practice this interview provides the key to successful placement. The fact that the returning veteran's personal history up to the time of induction is already a matter of record should not cause this interview to be slighted. It is quite important that the interviewer obtain as much information as possible concerning what has transpired during the individual's absence. He should recognize, however, that his questioning must be tactful and that he must not force the individual needlessly to discuss topics that are painful to him. The most desirable results will be obtained by the interviewer who can get the individual to tell his own story in his own words.

In this interview it is particularly desirable to secure an expression as to the individual's own feeling about his former job. It is suggested that, if possible, this be done without inviting a request for a change of employment or without suggesting doubt as to the desirability of the original job. It may be important that the job be changed, either because the individual is no longer capable of performing the job, or because of changed interests, ambition, or ability. While these facts should not be passed over, it is believed that they can be adequately developed without raising unnecessary questions or inviting a dissatisfied point of view.

It is also very important that no false hopes or unreasonable expectations be implanted at this time. With the best will in the world, there are practical limitations beyond which the employer cannot go and this fact should be clearly recognized by the interviewer.

The essential information required to complete the form hereinafter discussed should be noted unobtrusively as the re-employment interview progresses. Care should be exercised to avoid injecting stiffness or formality into the interview by too much note taking or by the obvious filling out of forms, as this will lessen the atmosphere of genuine friendliness and informality which should surround the interview.

Because of the attention which psychological tests have received in the armed services and are receiving generally, it is deemed appropriate to suggest that such tests should be used only where competent staff is available, and then under no circumstances should be applied to returned veterans as such. They may offer valuable possibilities when competently used

generally throughout the organization.

Placement

DECISION as to the job on which the veteran is to be placed must recognize the legal requirement that the veteran is entitled to the job from which he was inducted into military service, providing that job is still available and providing he is capable of performing it, unless he elects otherwise. This is the basic legal requirement.

In dealing with those individuals who are not capable of satisfactorily performing the job which they left, but are nevertheless employable, all pertinent factors should be carefully considered in deciding what job is to be offered. Pertinent are:

1. Previous employment history, with particular reference to acquired skills, experience, proven aptitude, and expressed inclinations.

2. Facts developed from the re-employment interview, with particular reference to skills or abilities acquired while in military service, and present ambitions and desires.

3. Careful consideration of the individual's condition as reflected by the findings of the examining physician in relation to the job requirements of the jobs available. Where any doubt exists as to the suitability of available jobs the matter should be discussed thoroughly with the physician.

In this regard Booklets II and III of this series may prove helpful.

Thorough consideration of each of the foregoing factors should guide the person responsible for placement toward an intelligent and satisfactory decision. It should also be borne in mind that a consideration of these factors might lead to the decision to offer the veteran a job other than the one which he left, even though he can perform the job which he left. Certainly the offering of a job which will improve the veteran's future possibilities when such job is available is to be encouraged to the fullest extent.

After a decision has been reached as to suitable job openings available, the question of placement should be discussed fully with the veteran and with the supervisor under whom he will be placed. The veteran should be given the opportunity of discussing the job with the supervisor and of viewing the job and operation if he so elects. It is particularly desirable that the veteran understand that care and consideration have been given to his problem.

In harmony with what has already been said, it is important that decisions affecting placement and transfer be fully explained to those members of supervision who will be directly involved in dealing with the veteran.

In connection with job placement it is imperative that the policy be established that once placed a veteran who has any degree of medical restriction may not be transferred to dissimilar work or to a dissimilar work location without the consent of the plant physician. This is to protect both the individual and the company, but it also protects the company from inadvertently incurring unnecessary compensation liability. This recognizes that a handicapped person properly placed may offer no unusual accident or occupational illness hazard, but that improper placement may result unfortunately.

Job Training

BOOKLET V of this series discusses training in relation to the re-employment of ex-service men and women.

Follow-up Contact

EACH case will require some degree of follow-up to insure that initial placement works out satisfactorily. Experience may show that the initial placement, no matter how carefully made, does not suit the individual case and, therefore, must be reviewed in the light of facts as they develop. Some of the problems will be transitory and will reflect nothing more than the difficulty which a normal person may be expected to experience in adjusting himself from an exceedingly active, outdoor life with rigorous physical exercise, and probably involving excitement and danger, to the relative routine of industrial employment. Such cases may require nothing more than sympathetic handling, with possibly some time away from the job. Other cases may require new job assignments.

Working out these problems will involve consultation with various members of management and supervision in order that a sound and constructive solution may be reached. Individual problems may also involve consultation with the medical department, or, in the absence of a medical department, with the physician who handles the plant's medical problems. It is therefore important that there be an organized plan of follow-up and that the individual responsible for veteran employment also be responsible for carrying out this plan, whether he does this by personal contact or with the assistance of others to whom these duties are delegated.

It is suggested that the returned veteran's supervisor be contacted shortly after he is placed at work, and certainly not later than one week after such placement. If this contact discloses no problems probably the veteran need not be contacted. When problems are encountered they should be discussed with the individual after the supervisor's point of view has been secured. Further follow-up contact should be made at reasonable intervals until it is clearly established that the placement is sound and mutually satisfactory, or until the case has been otherwise disposed of.

The nature and frequency of the follow-up must vary according to the individual case. In general it is recommended that the veteran be put to as little inconvenience as possible and subjected to the least possible embarrassment. In most cases the best results will be obtained by keeping the follow-up contacts as casual and unobtrusive as possible. They must also reflect a sincere interest in the individual veteran. It must be borne in mind that the average veteran wants to return to normal life and to his job with as little fanfare as possible, and that what appears to be a charitable or oversolicitious attitude on the part of the employee responsible for follow-up will be neither appreciated nor accepted. It is therefore important that the nature of the contact be carefully determined by close observation of the personality characteristics in each case. It is an observed fact that many employees—and veterans are no exception—are visibly upset by being called into the office of a member of supervision for an interview, regardless of the reason for or the nature of the interview. Freedom of discussion with management should be encouraged at all times. In some cases, however, frequent and unnecessary interviews may lead to the development of imaginary difficulties which, if left alone, may never be conceived.

With regard to the re-employed veteran who left other than a temporary job, the law provides ". . . He shall not be discharged from such position without cause within

PLACEMENT RECORD OF EX-SERVICE EMPLOYEE

Name..... Soc. Sec. Number..... Ins. No..... Empl. Date.....

Branch of Service..... Mil. Serv. Lvg. Date..... Reinst. Date.....

Type of Discharge..... Induction Date..... Discharge Date.....

Left for Mil. Serv. From: Dept.....Job.....Rate.....

Return from Mil. Serv. To: Dept.....Job.....Rate.....

Service Status { Abroad ( ) U. S. ( ) Disability if any.....%.....

Doctor's name and address..... Claim Filed { Yes ( ) No ( )

Service Record—(to include specialist schools attended, citations, wounds, and other data from discharge papers).....

.....

Work experience prior to Military Service.....

.....

Pre-placement Comments, include recommendation of Medical Department, Veteran Services, etc.

.....

PLACEMENT AND FOLLOW-UP RECORD

Date	Department	Job	Rate	Remarks

one year after such restoration . . ." This should be taken into consideration, along with rulings of Selective Service having to do with veterans' job rights, and the follow-up procedure should include adequate steps to insure that the employer's legal obligations are fully met during this period.

Records

THE records required will necessarily vary, depending upon the personnel record procedure of the organization. It is becoming a recognized fact that no matter how small the organization a complete personal history, including a history of employment showing job assignments, rate of pay, layoffs, transfers, etc., is a minimum essential.

The illustrated form, it is believed, contains the minimum information essential for recording the initial placement of a returned veteran, and for following this placement for the period of one year during which his job is protected unless there exist grounds for discipline. It is designed to place in the hands of the individual responsible for veteran placement and follow-up essential information for dealing with each case independent of other personnel records which may exist and to which reference may be had.

It is recognized that there is no one right way of designing a record of this type. However, the illustrated form is in use in a large organization giving particular attention to this problem and has proven both sound and practical. It may be reproduced very inexpensively by any of the standard copying methods or it may be printed if desired.

Medical Statistics for 1943

—Standard Oil Company of New Jersey—

M. G. ALLAN,
Statistician

THE following is a brief analysis of medical statistics for the year 1943 covering all individuals under the supervision of the medical department. These statistics include data on sickness, non-industrial injuries and industrial injuries received from affiliated companies operating in North, South, and Central America and the West Indies.

To properly evaluate these statistics there are a number of factors to consider that might well be mentioned at this time. Employees are divided into three broad classifications according to the type work: (1) producing and exploration; (2) refining; (3) marketing. The degree of medical supervision possible in each class differs widely. The marketing or sales units are of necessity small groups of employees scattered throughout their operational area. Medical supervision by full-time company physicians is not practical or possible and these men are cared for by outside physicians appointed by the medical department and acting on a fee-basis. Reports for these units are as a rule prepared by the personnel or annuities and benefits department based on doctors' certificates which are required for lost-time cases disabled a week or more and in cases of shorter duration, on the employee's statement. Employees engaged in production and exploration have a greater degree of medical supervision than the sales but here again the groups are not concentrated within one area. Wildcat camps spring up with the expansion of drilling operations, and it is not until they attain some degree of permanency that a more complete and full-time medical service can be installed. On the other hand, refining operations are stationary and the employees are under the supervision of the medical staff at all times. Statistical records from these units are more complete and there is closer contact between employees and company physicians than elsewhere.

The frequency rates as computed are the actual rates for absenteeism ascribed to sickness and injuries but may not be taken literally as actual sickness rates. In domestic companies particularly, an employee who is out for a short time, that is a one- to three-day disability case, more often than not does not consult a physician and therefore no certification of disability is presented on his return to work. As it is usually impossible to investigate these cases, the company doctor has no recourse and must accept the word of the employee as regards the disability and diagnosis. It is evident, therefore, that in companies where supervision is inadequate or lax, the employees may take advantage of the situation and remain away from work for personal reasons using illness as an excuse. One of the domestic refineries employed visiting nurses on a trial basis to investigate all reported absences on the first day and within a short time the number of cases losing one to three days decreased sharply. The results of this experiment were so effective that the plan was continued and the company executives were convinced that the money saved in the non-payment of sickness benefits as well as the reduction in days lost more than paid the nurses salaries.

In line with the above, the benefit program of each company must be considered as an important factor. Companies that have no waiting period for the payment of sickness benefits generally report a higher rate than do those with a waiting period of three or more days. During 1943 one of our South American companies instituted a policy of paying sickness benefits from the first day of

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illness and the frequency rate increased markedly over the previous year. While this increase was not altogether due to the change in policy, it was still in line with the experience of other organizations whose benefit payments have been liberalized. Perhaps this is better emphasized by the experience of a company operating in the United States. For the past 10 years the frequency rates for this organization were average or below the average of other companies operating in the United States. During these 10 years there was a waiting period for the payment of benefits, and each case was investigated before acceptance of the absence on medical grounds. However, in 1943 this policy was completely reversed, and the employees received compensation from the first day of disability and the company doctor was instructed to accept without question all absences reported due to illness. The immediate result was a 210% increase in the lost-time frequency rate.

In periods when the employment rate is high, the frequency rate is likewise high and, conversely, when the lay-off rate is high the frequency decreases. During the present world upheaval the labor turnover rate has naturally been accelerated with a great number of regular employees being inducted into the Armed Services. The physical calibre of the replacements has been somewhat below the previous average. Many of these replacements have been women, and while they have done their share in relieving the man-power shortage, it remains a well-known fact that absenteeism among this sex is considerably higher than for men. The reasons are obvious and too numerous to mention here.

With the above conditions in mind it can readily be appreciated why we do not make claims that the frequency rates as shown are true sickness rates but we do maintain that the report represents an accurate statement of the loss to industry charged to sickness disability and is the best yardstick available to measure this loss.

The majority of domestic companies have full-time company physicians, and dispensaries are maintained for the treatment of minor illnesses and all industrial injuries, with laboratory and x-ray facilities. Hospitalization by the company is not provided. In most of the foreign fields, the company maintains its own hospitals, treats all illnesses and supervises the sanitation and living conditions of the employees and their families who are housed in company camps. With such complete supervision it has been possible for the medical department in the tropics to control and greatly reduce the incidence of endemic diseases such as malaria, typhoid fever, amebic dysentery, etc., which are amenable to such measures.

Population

AN AVERAGE of 116,437 individuals were under the supervision of the medical department during 1943—an increase of 5,224 over the previous year. In the domestic fields, reports are submitted for employees only, but in the tropics we receive reports on employees' families and "others," this latter group including servants, food-handlers, contractors and various other individuals not connected with the company but dependent upon it for medical care. For record purposes we include the absolute number of cases and treatments for the families and "others" but all frequency rates are computed for the employee group only. Table 1 shows the distribution of population by status and location.

TABLE 1.
POPULATION—AVERAGE NUMBER FOR THE YEAR

Location	Employees	Employees' Families	"Others"	Total
United States	35,545	—	—	35,545
Tropical countries	29,432	41,218	10,242	80,892
Total	64,977	41,218	10,242	116,437

Professional Work

A LARGE volume of professional work is done each year by full-time and part-time medical staffs yet the bare presentation of figures tells only half the story. No provision is made for the time element involved in the various duties; for instance in dispensary work one patient might report for alleviation of a headache or mild stomach disorder which will require a minimal amount of time for treatment, yet another patient who comes in will require a complete physical examination, including x-ray, laboratory work, etc., before the diagnosis can be made and proper treatment instituted. Both these cases, however, have the same numerical value when presented in the total for dispensary cases. Table 2 shows the dispensary cases, treatments and some of the other more important activities.

Number of Disability Cases

A RECORD of each case of disability losing one or more days (also cases of sudden death) that comes to the attention of the local medical department is submitted to the head medical office at the completion of the case in the form of a "Register Card." This register card contains all pertinent data regarding the disability including the age, sex, and company service of the individual; the diagnosis, length of disability, hospitalization, operation and final disposition of the case. At the end of each year these cases are tabulated and are used as the basis for statistical reports for each unit. In 1943 a total of 63,726 register cards were submitted, each one representing an individual disability. The distribution of these lost-time cases by status and location is shown in the following table:

TABLE 2.
SUMMARY OF MEDICAL ACTIVITIES IN COMPANY HOSPITALS AND DISPENSARIES

Number of cases treated at company dispensaries	397,683
Number of treatments at company dispensaries	951,167
Number of cases treated in company hospitals	15,610
Number of days in company hospitals	143,453
Number of operations in company hospitals	4,318
Number of physical examinations	74,493
Number of x-ray examinations	25,330
Number of laboratory examinations	274,700

TABLE 3.
NUMBER OF LOST-TIME CASES

Location	Employees	Employees' Families	"Others"	Total
United States	32,815	—	—	32,815
Tropical countries	18,010	10,149	2,752	30,911
Total	50,825	10,149	2,752	63,726

In the preceding year there was a total of 46,513 lost-time disability cases recorded.

Days of Disability

A TOTAL of 422,371 disability days was reported for employees. On the average each case lost 8.31 days, while each employee lost an average of 6.50 days. From the first year these reports were compiled to the present date, there has been a steady downward trend in the average days lost per case with an upward trend in the average days of disability per employee. The non-effective rate is, perhaps the best index of the economic loss to industry through sickness and accident disability. The rate is based on frequency and severity and shows the number of employees per 1,000 absent daily. The non-effective rate for the year 1943 was 17.81, the highest reported for the period 1932-1943. (See Chart I.)

CHART I.
FREQUENCY RATES
BY GEOGRAPHICAL CLASSIFICATIONS

	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943
U. S.	405.58	332.80	331.95	382.08	447.53	471.82	436.30	501.18	574.62	644.82	617.36	923.19
Tropics	298.58	293.01	297.78	313.69	353.79	369.62	466.98	421.12	479.08	463.82	505.81	611.92
Europe	.....	.....	.....	.....	447.16	527.46	398.52	309.00	333.84	417.07	.....	.....

NON-EFFECTIVE RATES
BY GEOGRAPHICAL CLASSIFICATIONS

	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943
U. S.	16.14	13.65	11.61	13.25	14.86	14.84	14.74	16.59	17.29	18.38	16.51	21.75
Tropics	9.53	9.08	8.98	9.32	10.22	10.42	11.89	10.49	11.59	10.71	11.53	13.05
Europe	.....	.....	.....	.....	17.00	18.89	16.93	13.62	14.84	22.91	.....	.....

Frequency Rates

THE frequency rate shows the number of employees per 1,000 who remain off duty one or more days due to sickness or injury. For the entire group the frequency rate in 1943 was 782.20—an increase of 38%. While the increase was common to employees in the United States and the Tropics, the highest percentage increase occurred in the United States as shown in Table 4.

TABLE 4.
EMPLOYEE FREQUENCY RATES—ALL CAUSES OF DISABILITY

Location	1943	1942	Percentage Change
United States	923.19	617.36	+50%
Tropical countries	611.92	505.81	+21%
Total	782.20	568.53	+38%

The trend of frequency rates for the years 1932-1943 inclusive is shown in Chart I. It will be noted that the frequency rates, especially in the United States, have increased markedly from 1940 to date. Several of the domestic companies show particularly abnormal rates during this period of "war years" and it is interesting to note the comparison with the average rate for the pre-war period. (Table 5.)

TABLE 5.
COMPARATIVE FREQUENCY RATES

	Bayway Refinery	Gilbert & Barker Mfg. Co.	New Jersey Sales
1943	1,173.71	1,666.51	1,642.36
1942	700.57	504.31	1,100.77
1941	649.57	427.94	989.14
1940	436.59	344.68	534.30
Avg. rate 1933—1939 inc.	338.23	224.61	371.23

In each of the above companies the increase was motivated statistically by minor disabilities such as the common cold, gastritis, etc. The underlying factors, however, are many and varied. A percentage of the increase was due to the epidemic of influenza that occurred in 1941-'42-'43, but, as mentioned in the introduction, the changes in benefit plans, influx of women in industry and the unskilled laborers who were employed all played important roles. Not the least of these reasons, however, is the fact that wages are higher and jobs more plentiful resulting in greater independence on the part of the employee.

Industrial Disability

THERE was little change in the frequency and severity of industrial injuries. The rate for employees in the United States increased slightly while the Tropical Companies reported a lower rate.

TABLE 6.
INDUSTRIAL DISABILITY RATES BY LOCATION

	Freq. Rates		Non-Effec. Rates		Days per Case	
	1943	1942	1943	1942	1943	1942
United States	11.70	9.29	1.01	.84	31.39	33.18
Tropical countries	36.82	39.48	1.58	1.72	15.93	15.89
Total	22.85	22.51	1.27	1.23	20.26	19.90

Non-Industrial Disability

NINETY-FOUR per cent of the total disability is due to sickness and non-industrial injuries. With such a large percentage of cases in this classification it naturally follows that the trend is similar to that shown under "Total Disability." Table 7 shows comparative rates for non-industrial disability by locations.

TABLE 7.
NON-INDUSTRIAL DISABILITY RATES BY LOCATION

	Frequency Rates		Non-Effective Rates	
	1943	1942	1943	1942
United States	911.49	608.07	20.74	15.67
Tropical countries	575.60	466.33	11.47	9.81
Total	759.35	546.02	16.54	13.10

Frequency Rates

CHART II shows the frequency rates by disease groups according to geographical location.

CHART II.
YEAR 1943, FREQUENCY RATES BY TOPOGRAPHICAL CLASSIFICATIONS

Diseases	Rate U. S.	Rate Tropics
Respiratory	370.94	167.27
General	190.66	152.49
Digestive	185.26	114.02
Skin	22.08	34.79
Non-Ind. Injuries	26.64	28.78
Musculo-skeletal	39.39	12.64
Urogenital	27.57	24.67
Eye and Ear	10.66	11.79
Nervous System	12.13	7.24
Cardiovascular	10.80	3.30
Blood and Lymphatics	1.58	8.73
Endocrine	.42	.10
All Others	13.36	9.78

It will be noted that diseases of the respiratory system account for the greatest amount of disability in both the United States and Tropics but the percentage to the total non-industrial disability rate differs widely. In the United States 41% of all non-industrial disability is in this classification as against 29% in the Tropics.

General diseases, or those affecting the body as a whole including infectious diseases, rank second in importance from the standpoint of frequency. In the Tropics this group is influenced by the high incidence of malaria while in the United States the rate is governed almost entirely by influenza.

Third in importance are diseases of the digestive system with minor gastro-intestinal disorders accounting for the greatest percentage of lost time. In Tropical companies many of these cases are attributable to the high incidence of parasitic infestation. We also find in the Tropics that these rates are very often distorted due to extensive campaigns to eliminate carriers etc., as all those who are found to be harboring parasites are hospitalized to insure proper and complete treatments, resulting in an increased frequency rate.

It is interesting to note the variance in the rates for diseases of the cardiovascular system. In the United States the rate has been increasing steadily for the past twelve years that these reports have been compiled and in 1943 the rate is three times higher than the rate for employees in the Tropics. The higher average age of employees in the United States is undoubtedly the prime factor but in addition it is a well-known fact that natives of the tropics have very little hypertension and their cardiovascular disease rates are lower than in highly industrialized countries.

Skin diseases are more prevalent in the Tropics but on the other hand employees in the United States suffer more from rheumatic diseases.

Leading Causes of Disability

THE most frequent causes of disability vary somewhat according to geographic location. Chart III

CHART III.
TEN LEADING CAUSES OF DISABILITY

United States		Tropical Countries	
Causes	Rate	Causes	Rate
Common cold	310.25	Common cold	139.64
Influenza	159.94	Minor gastro-intestinal	48.79
Minor gastro-intestinal	107.19	Malaria	48.25
Rheumatics	45.46	Influenza	39.65
Tonsils—pharynx—larynx	43.21	Chicken pox—measles	34.04
Teeth and gums	21.92	Tonsils—pharynx—larynx	23.41
Bronchitis, acute and chronic	18.20	Venereal diseases	18.35
Dysmenorrhea	13.11	Rheumatics	16.72
Sinusitis	11.06	Bronchitis, acute and chronic	13.73
Appendix	6.78	Teeth and gums	10.94

shows the ten leading causes of disability for employees in the United States and in the Tropics.

It will be noted that seven of the diseases appear on both lists although the order of frequency is not the same. Dysmenorrhea, sinusitis and appendicitis are listed for the United States but not for the Tropics, while venereal diseases, malaria, chicken-pox and measles appear on the list for the Tropics but not for the United States. The common cold and influenza combined account for 52% of the total non-industrial disability in the United States and 31% in the Tropics. It is interesting to note that malaria, which was the most frequent cause of disability for many years in the Tropics, is now third on the list. This is not due to a reduction in malaria rates, however, but to an increase in common cold and minor gastro-intestinal diseases.

Detailed Analysis

COMMON COLD AND INFLUENZA: Although these two diseases are classed in different topographical systems according to the "Standard Classified Nomenclature of Diseases" we have found it better to combine them for our purposes. There is often so little difference in the symptoms that what might be termed a mild influenza in one company would be classified as a common cold in another and vice versa. The rates for 1943 are the highest ever reported for employees and represent a 63% increase in the United States and a 62% increase in the Tropics.

TABLE 8.
COMMON COLD AND INFLUENZA FREQUENCY RATES

	United States	Tropical Countries
1943	470.2	179.3
1942	288.5	110.6
1941	336.6	118.7
1940	315.1	139.6
1939	241.6	91.9

MINOR GASTRO-INTESTINAL DISEASES: Diseases in this category are becoming increasingly important from the standpoint of frequency particularly in the United States where the rate in 1943 was 107.2 as against 66.8 in the previous year—an increase of 60%.

MALARIA: Malaria does not constitute a problem in the United States and cases are reported from only a few companies which operate in the South and Southwest. In the Tropics, however, there is a continual battle waged against the spread of malaria. Breeding places and potential breeding places of anopheline mosquitoes are carefully drained and oiled, houses in company camps are well screened and prophylactic measures are enforced. Owing to the location of some of the company camps, however, many of the preventive measures introduced are nullified by the proximity of unsanitated national villages where the disease is rampant and uncontrolled. The rate for all tropical subsidiaries was slightly higher in 1943 than in previous years, but since some of the companies operate in areas where the disease is not endemic, it is more accurate to study rates only for those units operating in malarial regions. Table 9 shows the trend in frequency rates for the past five years in these selected companies.

The rate is many times higher among employees living in their own villages over which we have no control than among employees housed within company concessions. There has also been an expansion in the exploration work in the jungles where anti-mosquito measures are impractical. Add to this the unseasonal heavy rainfall which occurred during 1943 and we find many reasons for the increased rate. However, despite this, the fact remains that the frequency rates are too high and warrant a concerted effort to further control and reduce the malaria incidence.

TABLE 9.
MALARIA FREQUENCY RATES BY COMPANIES AND BY YEARS

	1943	1942	1941	1940	1939
Tropical Oil Co. (Columbia)	73.7	27.4	28.9	44.6	53.3
Standard Oil Co. of Venezuela	202.6	197.4	130.6	144.6	104.9
Andian Nat. Corp. (Colombia)	103.7	34.8	27.8	30.8	118.3
S. O. Argentine-Producing	61.6	58.4	50.6	45.8	57.4
Lago Pet. Corp. (Venezuela)	53.0	25.1	7.9	12.3	16.6

AMEBIC COLITIS: Amebic colitis does does not appear on the list of the 10 leading causes of disability in the Tropics but, nevertheless, it is one of the important medical problems encountered in these countries. The disease is prevalent in most of the South American countries and a high percentage of the national population are

TABLE 10.
DISABILITY AND DEATH RATES FOR EMPLOYEES

	No. of Emps.	No. of Cases	Frequency Rates* Total	Non-Industrial Disabil.	Industrial Disabil.	Non-Effec. Rates*	Death Rates*
UNITED STATES (Total)	35,545	32,815	923.2	911.5	11.7	21.8	3.88
REFINERIES	21,665	18,872	871.1	862.3	8.8	22.7	4.62
Baltimore	1,031	650	630.5	622.7	7.8	32.5	2.91
Baton Rouge	7,003	6,062	865.6	855.6	10.0	20.4	2.86
Bayonne	2,523	1,272	504.2	493.5	10.7	22.2	14.27
Baytown	5,391	4,548	843.6	835.3	8.3	17.5	3.25
Bayway	4,755	5,581	1173.7	1165.9	7.8	30.3	4.42
Everett	538	432	803.0	803.0	.....	25.5	5.57
Ingleside	424	327	771.2	764.1	7.1	16.2	.....
PRODUCING AND PIPE LINE	3,481	2,656	763.0	742.9	20.1	16.7	1.72
Carter Oil Company	1,841	1,428	775.7	764.3	11.4	16.9	2.17
Louisiana Pipe Line Dept.	658	599	910.3	881.4	28.9	24.1	1.52
Oklahoma Pipe Line Company	355	180	507.0	484.5	22.5	14.0	2.82
Plantation Pipe Line Company	530	351	662.3	630.2	32.1	9.1	.....
Portland Pipe Line Company	97	98	1010.3	958.8	51.5	14.7	.....
SALES	3,093	3,925	1269.0	1236.3	32.7	23.3	1.94
Colonial Beacon	1,288	1,658	1287.3	1265.9	26.4	21.0	1.55
Louisiana	941	848	901.2	866.1	35.1	17.9	2.13
New Jersey	864	1,419	1642.4	1603.0	39.4	32.7	2.31
NATURAL GAS	5,183	3,824	737.8	729.5	8.3	19.1	3.86
East Ohio Gas Company	1,754	1,691	964.1	956.7	7.4	19.0	1.71
Hope Group	1,985	1,096	522.1	545.6	6.5	21.7	6.55
Peoples Group	1,444	1,037	718.2	706.1	11.8	15.8	2.77
OTHER PLANTS							
Gilbert and Barker Mfg. Co.	2,123	3,538	1666.5	1660.9	5.6	24.7	2.83
TROPICS (Total)	29,432	18,010	611.9	575.6	36.3	13.1	1.90
Andian National Corp.	916	439	479.2	456.3	22.9	13.0	2.06
Argentine—Marketing	1,517	1,460	962.4	939.3	23.1	23.0	3.29
Argentine—Producing	1,088	973	894.3	779.4	114.9	25.0	.92
Argentine—Refining	916	601	656.1	644.1	12.0	16.7	4.36
International Petroleum Co.	5,538	1,403	253.3	220.5	32.8	6.7	2.35
International Pet. (Ecuador)	577	360	620.5	532.1	88.4	16.6	3.46
Lago Oil & Transport Co.	6,321	5,293	837.4	817.3	20.1	14.8	.63
Lago Petroleum Corp.	2,753	999	362.9	335.6	27.3	9.4	3.29
Standard—Brazil	1,761	1,059	601.4	562.8	38.6	9.7	3.41
Standard—Cuba (Belot Ref.)	372	264	709.7	688.2	21.5	20.1	2.69
Standard—Venezuela	3,470	2,705	779.5	708.6	70.9	16.1	.86
Tropical Oil Company	3,228	1,631	505.3	474.3	31.0	10.7	1.86
West India Oil—Chile	383	173	451.7	449.1	2.6	11.8	.....
West India Oil—Panama	388	361	930.4	909.8	20.6	15.2	2.58
West India Oil—Porto Rico	204	289	1416.7	1367.7	49.0	18.3	.....
GRAND TOTAL—ALL COMPANIES	64,977	50,825	782.2	759.4	22.8	17.8	2.98

*Per 1,000 per annum.

carriers. The periodic examination of all food-handlers, which is a company policy, and the enforced prophylactic treatment of these individuals regardless of the results of stool examinations have been instrumental in the control of amebic infections. During 1943 a total of 138 employees lost time due to amebic colitis, the frequency rate being 4.70.

TYPHOID AND PARATYPHOID FEVER: A total of 29 cases of typhoid and paratyphoid fever was reported for employees in the Tropics during 1943, the frequency rate being 0.99. This is an exceptionally low rate particularly for employees working and living in areas where the disease is endemic. All foreign employees and their families receive routine anti-typhoid inoculations before they are accepted for tropical residence and it is interesting to note that not one case occurred among this group during the year. In many of our companies the doctors report 100% inoculation of all national employees.

Deaths

THERE were 844 deaths reported during 1943 as against 704 in the preceding year. The distribution by location and status is shown in Table 11.

TABLE 11.
DEATHS—ABSOLUTE NUMBER

	Employees	Emp. Families and "Others"	Total
United States	138	—	138
Tropical countries	56	650	706
Total	194	650	844

The mortality rate for employees was 2.98 per thousand as compared to 2.92 in 1942. For employees in the United States the rate was 3.88 and for the Tropics 1.90.

Invitation to Cleanliness

—The Place of Soap in Preventive Medicine—

Book Review by
WILLIAM RUFUS REDDEN, M.D.,
Lecturer in Physiology, and Co-director of the Spars' Training Detachment, Columbia University College of Pharmacy, New York

MEDICAL USES OF SOAP: A symposium. MORRIS FISHBEIN, M.D., editor; IRVIN H. BLANK, PH.D.; THEODORE CORNBLEET, M.D.; C. GUY LANE, M.D.; CAREY P. McCORD, M.D.; DANIEL J. KOOYMAN, PH.D.; G. THOS. HALBERSTADT, B.S., CH.E.; RUDOLPH L. BAER, M.D.; LESTER HOLLANDER, M.D.; and MARION B. SULZBERGER, M.D., contributors. 182 pp.; $3.00. J. B. Lippincott Company, Philadelphia, 1945.

THE Preface states the objectives: "This collection of articles forms a Symposium on medical uses of soap. Each of the authors has previously contributed to the medical writing in this field. Occasional duplications have been permitted in order to bring out individual points of view relating to some debatable questions, such as the effects of free alkali, the comparative values of soap and soapless detergents, and similar subjects. This series of articles answers many of the questions as to the effects of soap on the normal skin and hair, on the abnormal skin; the effects of soaps used in shaving and shampooing, and irritation produced by soap under various conditions. The continuous improvement of soaps and soap products is reflected in the new methods of manufacture described in those chapters which deal with the chemistry of soap and related problems."

This presentation represents the first attempt to bring together in one volume such pertinent and obviously related material.

The timeliness of such a book is readily recognized when one considers the tremendous increase in the number of persons exposed to the "soils" or dirt of occupation, whether it be in heavy industries, in the various military services, in the wards of hospitals, or in the homes with the ever pressing need to get rid of that "soil" or dirt from work clothes, skin, hair, machinery, dishes, etc., more frequently than ever before because of the wartime step-up—and to get rid of it with a facility compatible with freedom from injury to skin, hair, and even the general health of the individual.

The editor, DR. MORRIS FISHBEIN, himself the editor of *J.A.M.A.* and *Hygeia*, who also contributes the final chapter, has shown excellent judgment in bringing to the discussion, as authors, two members of a prominent soap company: G. THOMAS HALBERSTADT, B.S., CH.E., and DANIEL T. KOOYMAN, PH.D., research chemist; five dermatologists: RUDOLF L. BAER, M.D., assistant attending physician at the Skin and Cancer unit of the New York Post-Graduate Hospital, Columbia University; MARION B. SULZBERGER, M.D., attending dermatologist and syphilologist, Dispensary, New York Skin and Cancer Hospital; THEODORE CORNBLEET, M.D., associate professor of dermatology, University of Illinois, College of Medicine; LESTER HOLLANDER, M.D., medical director, Pittsburgh Skin and Cancer Foundation; and C. GUY LANE, M.D., clinical professor of dermatology, Harvard University; a mycologist: IRVIN H. BLANK, PH.D., visiting research fellow in mycology, Harvard University; and the medical adviser of a heavy industry: CAREY P. McCORD, M.D., Chrysler Corporation.

There are nine parts to the Symposium.

THE FIRST, by KOOYMAN and HALBERSTADT, of Procter & Gamble, is titled, "Soap Technology." This clearly but briefly covers soap chemistry, soap manufacture, new detergents and detergency, or cleansing action. It is illustrated by 12 photographic plates concerning soap manufacture, and its finished product of bars, flakes, and granules. There are two schematic figures showing the action of soap molecules in aqueous solution and their emulsifying action on oil droplets. The chemical formulas throughout this part give a clear understanding of the text in regard to soaps and the "new detergents," the sulfates and sulfonates.

Speaking of the new detergents, the authors say: "The research and development in this field have been directed toward overcoming the one important disadvantage of true soaps: their reaction with water hardness to form the insoluble lime soap. During the past 15 years, literally hundreds of materials that cleanse have been synthesized." This subject is further elaborated in Part Eight by LANE and BLANK.

SULZBERGER and BAER are the authors of Parts Two to Four, inclusive. They cover, in excellent sequence, normal effects of soap on normal skin, abnormal effects of soap on normal skin, effects of soaps on the abnormal or diseased skin—all in about 22 pages, including five photographic plates. The bibliography at the end of the fourth part gives imposing authority to the textual presentation, as well as guidance to those who wish to delve into original sources. Excerpts from this material are enlightening. "Proper cleansing can remove from human skin many preliminarily irritating, sensitizing, toxic and poisonous agents potentially harmful to the skin itself, or which by their absorption through the skin might become harmful to other organs or to the body as a whole. Furthermore, proper cleansing can remove microorganisms and other living agents of disease which might otherwise cause persistence, recurrence, or spread of the infection in the individual, or transmission of infection to others."

Again: "Soap and water washing is one of the most pleasant, most readily available, and most effective and generally harmless of cleansing methods."

These authors point out the importance of the horny layer of the skin and a covering mantle made up of products of the body which reach the skin surface (endogenous) and

DR. REDDEN'S article, "Try Cleanliness First in Dermatitis Prevention," was published in INDUSTRIAL MEDICINE, 13:9, 706-708, September, 1944.

those which reach the skin from the outside (exogenous) in considering the cleansing process. This mantle is acid normally, and is considered to be essential to the health of the skin.

The endogenous or body-formed products are summarized, followed by a similar summary of exogenous materials. Unforunately, there is no method by which undesirable and desirable substances may be separated and only the former removed.

The present-day concept of the cleansing action of soap is given, and emphasis is put on rinsing as the important factor in removal of soap and in cleansing.

Alkali released from some soaps damage the skin, but "government specifications for toilet soaps say that the free alkalis must not exceed one-tenth of 1%. In fact, few laundry soaps contain up to the permitted one-half of 1%."

The outstanding research work of Price on the removal of bacteria from the hands by the surgical scrub-up appears important, as does the work of Walker on the differential germicidal action of soaps. Routine use of soap and water is an essential part of venereal disease action prophylaxis which has been accepted for years.

A further reaction to soap and water cleansing is indicated by the quotation: "No one will challenge the statement that the man, woman, or child who steps from the shower or the hot bath, after the liberal use of soapsuds and thorough rinsing, not only presents a more esthetic and healthy picture, but also actually feels better." This is not accomplished by water alone.

CORNBLEET prefaces Part Five with the statement: "A proper understanding of the effects of soap on the hair depends on a full appreciation of the anatomy and physiology of the hair, reasons for cleansing the hair, and the characteristics of the available cleansing materials. These individual aspects of the question are discussed in some detail in this chapter. The care of the hair and scalp, both normal and diseased is also discussed." He then proceeds to do just that, through approximately 15 pages, including five photographic plates. He favors the new detergents for cleansing hair because they have about the same effect as soap. But unlike soaps, "they require no acid rinses and leave the hair soft, lustrous, and easy to manage, even when hard water is used."

MCCORD, in Part Six, discusses soaps for industry and the industrial worker. He states that, in meeting the joint responsibility of employer and employee to maintain healthy skins, the worker needs good soaps properly used. He crystallizes this subject, on which thousands of pages have been written, into less than 24 clearly written and authoritative pages. Three soap formulas are suggested for industrial use under the headings: "Heavy-duty Granular Soap," "Light-duty Granular Soap," and "Liquid Soap." Their value is enhanced by the evident fact that they have developed out of actual industrial experience.

This significant statement is made in regard to soap manufacture: "A great many jobs in the soap industry require the continued handling of soap. It is interesting to note that these workers rarely develop any dermatitis, and that the soap industry is among the lowest in incidence of industrial dermatoses."

MCCORD's summary is full of meaning, worth pondering over by industrialists. "There is a trite maxim to the end that the per capita consumption of soap is a yardstick of a nation's degree of civilization. It is less banal to state that proper industrial washing facilities properly used constitute a yardstick of intelligent industrialism."

HOLLANDER opens Part Seven with the statement: "The matinal task of shaving has become the dictum of present-day male hygiene and facial style." He might have added that, since thousands of square miles of skin are shaved daily, it behooves man to learn how to do it with the greatest comfort and facility and with the least damage to the skin and temper of the individual recipient.

It took altogether too long for a scientist to realize the value of research into what appears to be such an unimportant subject as shaving. All those who shave are indebted to HOLLANDER for his original research on this subject. In the opinion of the reviewer, everyone who shaves should read this chapter in order to learn how to prepare for shaving pleasure or to check on his already effective method.

The presentation is made in 30 pages and includes therapeutic shaving as well as normal. Included are 17 original photographic plates which deal chiefly with the section on Therapeutic Shaving. HOLLANDER finishes the chapter by presenting a "Decalogue of Fallacies" instead of a summary. A few are quoted to indicate their nature: "That it is the alkali in soaps which causes irritation or sensitivity." "That soap for shaving acts as a lubricant." "That duller razor blades cause more damage than sharp ones." "That stiff lathers support the hair shaft and make close shaving easier." A short bibliography follows.

LANE and BLANK open their Part Eight, titled *Cutaneous Detergents Other than Soap*, with the following:

"Although soap has been known as a good detergent for many centuries, its almost universal use dates only from the early part of the 19th century. Previous to that time, water alone, oils, alkalies and mechanical means were used for cleansing the skin." They come immediately to the main subject of their discussion of the newer detergent substances similar in action to soap, grouping these under the general heading of "Surface Active Agents." Most of the chapter is "devoted to this group because more satisfactory cleansing of the skin is obtained with these materials than with water alone, oils, alkalies, or any of the detergents other than soap."

The chemistry and classification of these newer detergents are adequate for an understanding of the subject. Then follow in logical sequence the mechanism of cleansing, clinical application, "sterilization" of the cutaneous surface, use of industrial cleansers, water, oils and oil solvents, etc.

Important points of the chapter are summarized: "cleansing materials, except in special instances, have been supplanted by soap and water. The new detergents may be classified along with soap as surface-active agents. They have the advantage over soap of retaining their detergent properties in hard water. Probably they remove soil from skin in the same way as soap. Some may be less irritating to some skins than soap—their use has not been long enough to determine sensitization. Some seem to be better germicides."

Clinical experience indicates "that they will be more widely used when a low-cost cake form is developed which will lather and which has satisfactory physical properties."

The bibliography is the key that opens the door to original investigations and to other literature on the subjects discussed.

THE FINAL Chapter by the editor, DR. FISHBEIN, is titled *The Medical Uses of Soap*, the title of the book. To digress a bit, one wonders what soap manufacturing, shampooing of the hair, shaving, and industrial uses of soap have to do with the medical uses of soap. But the wonder fades as one realizes the need for exact information about the material under discussion in order to understand its action. Furthermore, it is soon recognized that the other subjects are directly concerned with preventive medicine, which makes them even more valuable in a symposium dealing with the medical uses of soap.

Returning now to the contents of the final chapter, contained in a little over six pages, followed by a brief but adequate bibliography, the chapter opens with the sentence: "Cleanliness is important for the functioning of the skin. Soap is the generally accepted cleanser for the skin because years of experience have shown that soap will remove both visible and invisible dirt." DR. FISHBEIN stresses the value of soap as a dissolver and remover of materials rather than a destroyer of living organisms.

In quoting Dr. Bernard Fantus in this chapter, the following appear: soap, the single most important cos-

metic; soap and water bad for complexion a dead supersition; in only exceptional cases is the skin of the face irritated by toilet soaps; the cleansing of skin lesions should be the first step in dermatological practice because it is futile to apply remedies to areas with crusts or scales.

Special reference is then made to the care of baby's skin, especially when eczema occurs. Under the heading Soap in First Aid, one finds such subjects as: Soap and water use for cleansing wounds (no antiseptics), with a report of 12,044 open wounds thus handled over a five-year period with only 18 hospitalized cases; soap and water cleansing in skin grafting without occurrence of infection; mechanical cleansing with soap and water, just before closure of a wound, efficiently and harmlessly removes agents of primary wound infection with staphylococci, streptococci, and similar germs likely to be present in air; the selective germicidal action of soaps reported by Dr. John E. Walker when he was director of the Army and Navy research laboratories at Hot Springs, Arkansas; removal of micro-organisms from the skin during the surgical scrub-up according to Price, who showed that transient germs are readily removed, but resident germs more slowly.

Mention is made of soap suds enemas and soap suppositories; the work of Reasoner and Gill on the spirocheticidal action of toilet soaps, and their suggested use for removing the spirochetes related to Vincent's infection from the mouth; soap in venereal diseases (in this use, all one has to do is to see the Navy film, Male Sex Hygiene, to be convinced); soap in scabies; and shortage of soap in war, a quotation in brief from the International Labour Office: "Among the articles of prime necessity . . . one of the most important is soap. . . . In Greece, too, soap is practically nonexistent, a condition which encourages the spread of disease and epidemics."

Finally, there is a consideration of soap in hygiene. The statements are made that a shortage in the supply of soap is important in relation to health of the community; that, in the prevention of the common cold, influenza, pneumonia, and dysenteries, the factor of cleanliness cannot be too greatly emphasized; that industrial war workers suffer from disturbances related to failure to remove toxic substances by thorough washing of the entire body with soap and water, and that the Council on Industrial Health of the A.M.A. and the regulations of practically all state industrial commissions demand a definite provision for thorough washing with soap and water in all industries.

EXCERPTS from the closing quotation from Florence L. Meredith, in her textbook on Hygiene, and from Dr. Thurman B. Rice, health officer of the State of Indiana, fittingly close the symposium. From the former, "No other single article can compare with soap in respect to the amount of sickness and death prevented by its use. . . . Uncleanliness of habits of living may be considered responsible for more ill health than any other cause." From the latter, "A characteristic of the modern age is that it uses soap and water far more freely than has any previous age. . . . In our opinion, the biggest accomplishment of modern times is to be seen in the fact that a civilized community takes measures to make itself and its individual members clean."

It is not stated that one of the primary purposes of this Symposium is to emphasize the place and importance of soap in preventive medicine, but that emphasis, nevertheless, will be among the important effects of the book. Persuaded always by tactful suggestions and references, and never made resentful by bludgeoning repetitions of the obvious, the reader finds himself inclined toward more intensive applications of principles of cleanliness he has known so long that they have become trite. If every industrial physician, nurse and safety director were to read this volume and respond to its urge toward the intensification and wider application of what is so clearly set forth in its pages, the industrial dermatitis problem, for one, would quickly assume much less formidable proportions. Its reading is recommended, therefore, not alone for its abounding interest, but more importantly for its inspiration toward the enhancement of prevention, in ways and by means so simple that no industry can afford to make less than full use of them.

Future Needs of Industrial Medicine

T. J. CARTER,
Captain (MC), U. S. Navy,
Chief, Preventive Medicine Division,
Bureau of Medicine and Surgery

LATE in 1941 a flash bulletin went the rounds in Washington to the effect that Brooklyn had entered the war on the side of the United States. That was good news indeed, for Brooklyn industry packs a big wallop. A 10-mile circle drawn from this room would include some of America's most highly specialized and critical industries.

The pressure of three years of war, the constant call for doubled and redoubled effort on the part of every one of us, have made us all a bit older and a lot wiser. This meeting is an example of what I mean.

Men like you here present, and professional schools, such as the Long Island College of Medicine, have helped bring industrial medicine out of the industrial dog house and into the front parlor—where it belongs!

Six or seven years ago industrial medicine was frequently side-stepped as a fairly remote and specialized field. At that time many of us were too busy with the problems of the day and the darkening horizons abroad to give the subject much thought. I mention this only to provide a point of reference, a sort of landmark to which we can look back and see how far we have come.

CAPTAIN CARTER delivered this address early in December to a group of industrialists and industrial physicians interested in developing an industrial health project at Long Island College of Medicine. The opinions expressed are his own and do not necessarily represent those of the Navy Department.

I HAVE been asked to discuss "The needs visualized by the U. S. Navy in the field of industrial medicine."

No such discussion of the future could be complete without mention of the foundation we plan to build on, namely, the present and the past.

Early in 1941 a Section of Industrial Health was set up in the Bureau of Medicine and Surgery under the Division of Preventive Medicine. This section cooperates with the Shore Establishments Division of the Navy Department to conserve health and prevent disease and accidents within Navy industry.

With approximately three-quarters of a million workers currently employed by the Navy, it is only natural that the field of industrial medicine would come in for a large share of our attention.

When war came, the introduction of new work hazards as well as the intensification of old ones brought about a parallel increase in our industrial health activities. We proceeded in the belief that dangerous materials could be handled safely. We felt any job could be performed safely if proper advance studies were made and necessary precautions observed.

To carry out this policy dozens of Navy medical officers were given intensive post-graduate training in the broad field of industrial hygiene. In addition, many safety officers were given duty in the fields of chemical, sanitary or mechanical engineering. Many more officers developed proficiency in these fields through the direct school of experience. For some of these men such assignments meant more than learning new facts—it meant changing old attitudes.

One old attitude was that industrial health work was concerned mainly with safety shoes and goggles and welding helmets. This restricted association of ideas was due largely to the fine safety record some sectors of industry had built by preventing accidents. But with survey after survey proving that occupational *illness* is a powerful silent partner of accidents in creating absenteeism, the feeling that accident prevention was the end-all of industrial health work needed changing.

This, let me add, is not meant to minimize accident prevention. The Navy is proud of its record in this field. As industrialists and as citizens of a country at war you may be interested in one or two examples.

Not so long ago a battleship was launched and commissioned without a single fatality—and 24 million man-hours of labor had gone into that huge ship. For the first time in history a capital ship had been put together from keel to control tower without one fatal accident.

This production victory was no mere chance; soon after that first launching came a second "battlewagon" into which had gone 18 million man-hours—also without a single fatality.

Even without such a record behind us, we might still have built the seven-ocean Navy we now have—but we could never have built as much as quickly. When you consider the vast distance in space and power between the desperate days of Guadalcanal and our present "one-two-punching" of Japan, you can best see what industrial medicine has helped produce.

The problems our industrial hygiene officers handle are not significantly different from those being grappled with by their civilian counterparts in war industry. The widespread use of women workers, to choose one example, has made all of us re-examine working methods and concepts.

In peacetime years the Civil Service physical standards for hiring workers in Naval Shore establishments were about the same standards used today by the Marine Corps. We had to change all that when war came. A year or two ago you and I heard a great deal about the manpower shortage and the need for "scraping the bottom of the barrel." Since that time we've gone through the bottom of the barrel!

Today we have more youngsters and more middle-aged people working harder and longer than they ever have before. Today if a man can do a job without danger to himself or others, he goes to work.

All this has forced us to maintain a constant search for more and better safeguards against accidents and illness.

Routine surveys of industrial health exposures and working conditions, special investigations supplemented by complete laboratory analyses, periodic physical examinations of employees engaged in hazardous trades—these lines of attack have eliminated many occupational disease hazards. The hard-working executive, the civilian industrial physician, the U. S. Public Health Service, the state industrial hygiene departments, all have worked side by side with us in helping make sure our men "get there fustest with the mostest."

GENERALLY speaking, Brooklyn is not an area crowded with mammoth industries. A large number of plants in Brooklyn—just as in the United States as a whole—employ fewer than 500 or 1000 workers. For the sake of convenience these plants have often been termed "small." It is in just such "small plants" most Americans work. Despite this population factor, most of these industries do not have full-time industrial physicians, although many have obtained the services of a physician on a part-time basis.

Within these plants lies an unexplored frontier for postwar industrial physicians. Young men, and women, now attending medical school might remember that for future reference. The war has demonstrated time and time again that workers' health programs pay dividends—dividends in lives saved and made better, dividends in time saved and production speeded.

There are many specialized fields such as tuberculosis, nutrition, and venereal disease control which plainly overlap industrial health in every direction. The future should see closer integration among such fields and industrial medicine. For example, a wise plant physician knows that women between the ages of 15 and 24 are the largest group which is, statistically speaking, prone to tuberculosis.

In every war before this one—and in Great Britain even today—the national emergency has brought about an increase in tuberculosis.

In the United States today, however, that is no longer true, partly because industrial medicine succeeded in selling the idea of periodic health examinations. Cases of TB were caught while still in the early and latent stages. The policy of providing periodic health examinations has long been established within the Navy, just as it has in many civilian industries.

This one brief example may serve to illustrate that industrial medicine has expanded from the narrow viewpoint of merely protecting the worker from accidents to the larger concept of considering the whole range of health betterment.

Visualizing the needs of the future has been said to slacken the concentration of effort which the present demands. We still have a very tough war to win, and any postwar considerations which would lessen that effort must be put aside. However, from another viewpoint, the future is here today.

I REFER to the growing stream of returning veterans. In this group there is one man about whom much has been said and around whom there is considerable public misunderstanding. This man is the veteran who has been discharged with some neuropsychiatric disability. Many conceptions exist about this man—many a time he has come home and been cold-shouldered by former acquaintances and misunderstood by former employers. A man discharged from the Service because of combat fatigue is not psychotic. The overwhelming majority of such men, despite the terrific mental and physical punching war has given them, are every bit as capable of holding jobs as they were before they put on uniforms.

Then there is the other veteran, a man handicapped by some physical disability. There are, and will be, men who should not work near certain kinds of machinery. There will be men who should be allowed to lift just so much and no more. Others, if properly placed, will work only at street floor levels and will not be allowed on elevations such as ladders and scaffolds. Still another group will find certain postures difficult to maintain for considerable periods of time. There will be the man who cannot remain in one sitting position too long, and the man who cannot bear the strain of standing all day.

A little additional time and care in placing these men will pay lasting dividends in efficiency and morale. The careful and increased use of pre-placement exam-

inations is plainly called for in the future. A handicapped worker who is properly matched to his job is a safer risk than a physically normal man who is improperly placed.

It has been demonstrated repeatedly throughout industry that suitably placed handicapped workers have less absenteeism, less turnover, and fewer accidents than the average able-bodied group.

The veteran who has a serious disability may paradoxically stand a better chance of getting tailor-made job placement than the veteran with a partial handicap. Because the second man is less seriously disabled it will unfortunately be all too easy to give less intensive consideration to his case. I would like to add a footnote here to the effect that these physically handicapped men, as well as combat fatigue veterans, have a certain mental hurdle to jump before they can complete their readjustment. Although they know they can never replace a lost arm or leg, for example, they will most definitely want to replace the feeling of being just as good as the next man. A job which emphasizes their capabilities and minimizes their disabilities can go a long way in making such men feel full-bodied members of society again.

IN ONE manner of speaking industrial medicine will now become deeper and broader in its interests. There is an opportunity for every industrialist, by a little careful planning, to represent American ideals at their best without for a moment minimizing the needs of his own company. This question of veteran rehabilitation has thrown into sharp focus the whole issue of job analysis and job placement.

In every organization there is always one man who can say: "Do it!"—and it will be done. It will not be sufficient for men in this position merely to find jobs to put men to work. By careful analysis of the jobs you have open, and equally careful placement recommendations for your applicants, the industrial physician can work what would have been miracles in the past.

No industry can operate long on a miracle basis, and that is just my point: the fullest utilization of manpower, in the light of today's knowledge has nothing to do with miracles and everything to do with careful planning. This whole question of matching a man to a job, and a job to a man, will bear repeated analysis and discussion. The hammers of war have done more than simply break down. In some ways they have built up—they have forged new paths of character. Men returning from service have acquired certain valuable qualities. They have learned new meanings of courage and discipline, team work and democracy. These profound lessons will stay with most of them the rest of their lives and appear in all the work they do.

The potentialities of industrial medicine as one of the major paths which America can follow to a better future have barely been realized. Industrial medicine in the future will overlap many fields and many ideas —ideas of more efficient production, better placement and use of personnel, ideas of better labor relations and better social relations all around the circle.

This is not a Navy job, but the Medical Department of the Navy will be proud to be a member of a team which aims at such goals. In responding to the subject I have been asked to discuss, perhaps I can best say that the needs visualized by the Navy in the field of industrial medicine will be the same needs as those visualized in all of America's industries.

Workers' health maintenance does not begin and end at the factory gate. Without adequate community health services, the best industrial health practices will fail. The future will undoubtedly see more widespread cooperation between in-plant and out-plant health services.

Team work between the executive, the personnel manager, the industrial physician and our medical schools can make a tremendous contribution to American life by recognizing the many factors which bear upon our workers and their work—for, in a sense, men and jobs will be the foundation of the peace to come.

American Association of Industrial Physicians and Surgeons

—Constitution and By-Laws: Proposed for Adoption—

Constitution

Article I—Name

THE name and title of this organization shall be THE AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS.

Article II—Object

THE object of this Association shall be to foster the study and discussion of the problems peculiar to the practice of industrial medicine and surgery; to develop methods adapted to the conservation and improvement of health among workers in industry; to promote a more general understanding of the purposes and results of the medical care of employees and to unite into one organization members of the medical profession specializing in industrial medicine and surgery for their professional advancement.

Article III—Membership

SECTION 1—Membership in this Association shall be of four classes: (a) ACTIVE, (b) FELLOW, (c) ASSOCIATE, and (d) HONORARY. Only physicians who are actively engaged in the practice of industrial medicine and surgery or who are engaged in the investigation of industrial medical problems shall be eligible to Active Membership. Any person who has contributed distinguished service to the objectives for which the Association stands shall be eligible to Honorary Membership.

SECTION 2—Active Membership. To be eligible for *active membership* in the Association, the applicant must be certified as a member in good standing of his respective county medical society, and shall have had at least five years' experience in the practice of medicine since graduation from internship, at least three of which must have been in the field of Industrial Medicine and Surgery, during which three-year period, 50 percent of his practice must have been in that specialty. Additional factors to be considered are:

(a) That an applicant with exceptional qualifications and experience may justify the above rigid rule being waived and his application approved by the Membership Committee,—i.e., applicants holding prominent positions, or outstanding specialists, even though less than 50 percent of their practice is industrial.

(b) Applicants for membership must be admitted through the Component Society if such exists in the locality in which they reside; however, in case of a dispute over rejection by the component society, the rejected applicant has the right of appeal to the Board of Directors of the American Association for a review of the case.

(c) Also, in unusual situations, where the Component Society's sphere of influence is not well defined, applicants may be admitted directly through the Association's headquarters.

SECTION 3—Associate Membership. Physicians who have the personal and professional qualifications for active membership but whose length of time or whose percentage of industrial practice is insufficient, may apply for *Associate Membership*. Such applications shall be acted upon through the same procedure as active members.

SECTION 4—Associate and Honorary members shall have all the privileges of Fellows and Active Members, except the privileges of holding office and voting for officers and directors or for amendments to the Constitution and By-Laws.

SECTION 5—Applications for Active or Associate Membership must be made in writing; be accompanied by the fee for the annual dues; approved by a Fellow or an Active Member in good standing, and be certified by the Secretary of applicant's local county medical society that he is ethical and in good standing. Applications shall not be acted upon by the Board of Directors unless they have first been approved by the Membership Committee. HONORARY MEMBERSHIP may be conferred upon physicians who have contributed distinguished service toward the advancement of Industrial Medicine and Surgery, or who have performed some special service for the Association. Proposals for Honorary Membership shall be made by either the Membership Committee or a member of the Board of Directors.

SECTION 6—A two-thirds vote of the Board of Directors shall be required to elect to any class of membership.

Article IV—Fellowship

SECTION 1—Active members after *five* years of membership and who have made sufficient contribution toward the advancement of Industrial Medicine and Surgery, may apply for Fellowship.

SECTION 2—A suitable certificate shall be issued to those upon whom Fellowship has been conferred.

Article V—Officers and Directors

SECTION 1—The officers of this Association shall be a President, a President-Elect, a First Vice-President, a Second Vice-President, a Treasurer, and a Managing Director. They shall be Fellows of the Association and shall be elected by the Association and shall serve from the close of the Annual Meeting at which they are elected, or until their successors are elected and installed.

SECTION 2—The affairs of the Association shall be administered by a Board of Directors, consisting of the officers and twelve directors. Only Fellows shall be eligible to serve on the Board of Directors.

SECTION 3—The planning of the work of the Association, arrangements for meetings and programs and for other matters pertaining to the administration of its affairs, shall be vested in the Board of Directors, except as otherwise herein expressly provided. The President of the Association shall serve as Chairman of the Board. The Board shall make its own rules, and it and the President shall appoint such committees for carrying out the work as they shall deem necessary and advisable.

SECTION 4—The Executive Committee. The six officers of the Association shall constitute an Executive Committee.

SECTION 5—The Committee of Past Presidents shall be composed of all Past Presidents of the American Association of Industrial Physicians and Surgeons who are still active or are honorary members of the Association. This Committee is empowered to act as an Examining Board to determine standards for Fellowship, examine candidates and issue certificates; also to serve as the Certification Board of our Association, and to serve as an Advisory Council to the Board of Directors, electing its own Chairman annually and being a self-governing body.

Article VI—Component Societies

SECTION 1—The Board of Directors shall have the power to take the necessary steps for organizing or admitting component societies.

SECTION 2—A local or regional organization of Industrial Physicians and Surgeons already established, may become a component society and its members admitted to full active membership in this Association by making application therefor with a certification from their President and Secretary that their members meet all our requirements for membership; have been carefully chosen and are all members in good standing of their local county medical society. Dues per member for current fiscal year and a copy of Constitution and By-laws must accompany application.

SECTION 3—Any local or national organization of laymen or of another profession whose work and activities are closely allied to Industrial Medicine may become an affiliated society under conditions set up by the Board of Directors.

Article VII—Amendments

SECTION 1—This Constitution may be amended by a two-thirds vote of the members present and voting at any annual meeting of the Association provided that notice of proposed amendments must be given by publication in the official Journal of the Association at least thirty days before the date set for the meeting.

BY-LAWS

Article I—Meetings

SECTION 1—The Annual Meeting of the Association shall be held at the time and place selected by the Board of Directors. The number present shall constitute a quorum.

SECTION 2—Special Meetings may be called by the President with the approval of the Executive Committee.

SECTION 3—Notice of all meetings shall be sent to the members by the Managing Director, at least thirty days in advance of the date set for them.

SECTION 4—Each member of the Board of Directors shall be notified in writing by the Managing Director at least two weeks in advance, as to time, place and purpose of a meeting of the Board of Directors. Seven Directors shall constitute a quorum.

Article II—Dues

SECTION 1—The annual dues of Active Members shall be Ten Dollars per year; of Fellows Fifteen Dollars per year, and of Associate Members Five Dollars per year, which amount as to each Member and Fellow includes at least fifty per cent (50%) of the basic annual price of one year's subscription to INDUSTRIAL MEDICINE, the Official Journal of the Association. Dues shall be payable in advance on the first day of January of each year. Honorary members shall pay no dues.

SECTION 2—Any member whose dues are unpaid by the end of the current year automatically loses his membership.

SECTION 3—Any member or Fellow dropped for non-payment of dues may be re-instated at any time previous to the convening of the Annual Meeting of the year following his delinquency by payment of dues in arrears and also the dues for the current year.

Article III—Election of Officers and Directors

SECTION 1—Nominations for officers and directors shall be made by a nominating committee of three Fellows to be appointed by the President at the first executive session of any Annual Meeting. Provided, this article shall not be construed so as to deprive any member of his right to make nominations from the floor.

SECTION 2—Election of officers and directors shall take place at the last executive session of the Annual Meeting.

SECTION 3—At each Annual Meeting there shall be elected to the Board of Directors five Fellows to serve for a term of two years. The retiring President shall be an ex-officio member of the Board of Directors for one year.

SECTION 4—In the event of there being competitive nominations for any office, election shall be by ballot, and a majority of all votes cast shall be required to elect. If after two ballots there shall be no election, all but the two candidates receiving the highest number of votes shall be dropped from the ballot and the voting confined to the two so designated.

SECTION 5—The Board of Directors shall have power to fill vacancies among the officers and directors to serve until the next Annual Meeting of the Association or until their successors are elected and installed.

Article IV—Duties of Officers

SECTION 1—The President shall preside at all meetings of the Association and the Board of Directors and shall perform such other duties as may be directed by the Board of Directors. He shall also be ex-officio member of all Committees. In the absence of the President, the President-Elect or a Vice-President shall act in his place.

SECTION 2—The Treasurer shall be the custodian of all monies of the

Association and shall pay all just bills against the Association subject to the approval of the Board of Directors; he shall submit his accounts, audited by a Certified Public Accountant, to the Board of Directors at the Annual Meeting and shall transmit to his successor in office all funds and property of the Association remaining in his possession. He shall submit an annual report to the Association in such form as may be determined by the Board of Directors. He shall be bonded in such an amount as shall be determined by the Board of Directors from year to year and in a company approved by the Board of Directors. Expense of bond shall be borne by the Association.

SECTION 3 — The Managing-Director shall keep an accurate record of all the transactions of all meetings of the Association and of the Board of Directors; shall carry on the correspondence of the Association; shall keep an accurate list of the Fellows and Members, which shall show their status in the Association; shall receive all monies belonging to the Association, giving receipt therefor, and turning them over to the custody of the Treasurer. He shall be paid a yearly salary, the amount to be determined by the Board of Directors. He shall be bonded.

SECTION 4—The Executive Committee shall transact the duties of the Board of Directors in emergencies or in any special assignment from the Board of Directors. It shall pass upon the applications of component and affiliated societies and complete arrangements for their admission into the Association. Its actions shall be subject to the approval of the Board of Directors.

SECTION 5—The Committee of Past Presidents shall be composed of all past presidents of the American Association of Industrial Physicians and Surgeons who are active or honorary members of the Association. This Committee shall keep its own records, elect its own chairman annually, and be a self-governing body.

This Committee shall discuss with and report to the Board of Directors its conclusions to said Board of Directors. The Committee of Past Presidents shall also serve as a Board of Examiners to serve if and when a Certification Board is established. A liaison group of three, consisting of the President of the Association, the President-Elect and the Managing Director, shall attend the Meetings of the Committee of Past Presidents.

Article V—Committees

SECTION 1—The President shall appoint a program committee consisting of two or more Fellows or active members and the Managing Director as a member ex-officio whose duty it shall be to provide the program for each meeting of the Association.

SECTION 2—The President shall appoint other committees as the Association or Board of Directors may recommend or at its own discretion for any special purpose pertaining to the Association or its activities.

SECTION 3—The President shall appoint a membership committee of three or more members; whose duty it shall be to investigate and pass upon all applications for membership before they are referred to the Board of Directors for their consideration.

Article VI

SECTION 1—All resolutions shall be referred to appropriate committees for recommendation before submitting them to the Association.

SECTION 2—A Fellow or member may be expelled for such cause as the Board of Directors may deem sufficient; provided, that a copy of the charge made against him shall be furnished to him in writing at least thirty days before the meeting at which such action is taken. A three-fourths vote of all members of the Board of Directors shall be required to expel a member of the Association.

Article VII—Amendments

SECTION 1—These By-Laws may be amended by a majority vote of the members present and voting at any Annual Meeting of the Association; provided, that notice of proposed amendments must be given by publication in the official Journal of the Association at least thirty days before the date set for the meeting.

NEWS, COMMENT and OPINION

CHRYSLER Corporation president, K. T. KELLER, said recently that 5,000 men formerly in the armed services are now back at their jobs in various Chrysler plants.

VITAMIN DEFICIENCIES — As the Dentist Sees Them" is the third in a series of charts distributed to the dental profession by Bristol-Myers Company; the first was "Syphilis—As the Dentist Sees It," and the second, "Cancer—As the Dentist Sees It." These charts are printed in colors. The material has been commented on favorably by members of the dental profession, as well as by physicians. The charts will be sent on request.

THE trustees of the Nuffield Foundation have offered the universities of Durham, Glasgow and Manchester grants totaling $600,000 to carry out schemes which they have submitted for the development, as soon as suitable staffs can be appointed, of teaching and research in industrial health. These grants will will be spread over a 10-year period.

—Foreign News, in *J.A.M.A.*, January 20, 1945.

Safety Education

THE Alabama Dry Dock & Shipbuilding Company buys daily advertising space in the Mobile papers, to publish messages of current interest to its employees. The following is a typical item: "Of the 44 lost-time accidents on the yard in March, more resulted from burns than any other cause. The proper protective clothing would have prevented these injuries. In the interests of maintaining production schedules, and for your own protection, you are urged to get and wear the type of clothing to prevent burns."

—*Occupational Hazards*, January, 1945.

Barrage Brings Beds

WHEN it learned recently that Federal priorities might not be granted for the construction of a "badly needed" 100-bed addition to the Berkeley (Calif.) General Hospital, the Northern California Union Health Committee engineered what it has described as "a barrage of wires" to the WPB. The priorities application was approved. "A shortage of about 300 beds in the East Bay area has threatened the health security of war workers for many months," the committee asserted later, adding that hospitals were discharging patients prematurely, delaying the admission of pregnant women, and generally promoting absenteeism. "The 100-bed addition," it concluded, "plus the 200 beds granted to the Northern Permanente Foundation will greatly alleviate the situation."

—*Medical Economics*, January, 1945.

Medical Care Plan

HOFFMANN-LA ROCHE, INC., Nutley, New Jersey, put into effect, on January 1, what is possibly the most complete plan for medical care insurance yet worked out by private industry. The plan is detailed, but in general means that all full-time employees, regardless of position or salary, will receive free doctor's care and treatments, either at home, the hospital or the doctor's office; also free hospital, surgical and obstetrical expenses for themselves and dependents.

—*Hospital Topics & Buyer*, January, 1945.

Up from Twelve

A COLUMBIA University psychologist, working with Dr. George H. Gallup, of Gallup poll fame, reports that on the basis of a 20-word vocabulary test given a representative sample of our nation's voters, it is indicated that the average American voter has a mental age of 16 years. Women are more intelligent than men voters, and people in their 20's are smarter than those over 60.

—*Hospital Topics & Buyer*, January, 1945.

Those OPA Cancelled Points

WHAT we cannot dispense with is confidence in the agencies that are attempting to lead us through our wilderness. Probably the worst that can be said is that, like some of our military leaders, they

simply did not know what was going on. In that lack of knowledge, however, they have lost face with the public to which they are eventually answerable. This has made it more difficult, moreover, for some of the volunteer citizen aides, such as the members of medical advisory committees, to solve their own problems conscientiously and to retain to any great degree the confidence of their own "public." This country can double and triple and quadruple the sacrifices that it is making, and may yet have to do so now that its introductory years to total war are over. It can do so with calm confidence, however, only if it can have faith in the judgment and ability of its leaders, as well as in their integrity; and this last is not being questioned. If democracy at war may be considered as passing through a forest of disillusionment guided only by a flickering lamp of patriotism, then let us at least turn our ingenuity to trimming the lamp and not to extinguishing it.

—From "Not So Good," editorially in *New England J. Med.*, January 11, 1945.

Destroying Its Livelihood

A GREAT deal of nonsense is being talked at present about preventive medicine; it has become a catchword and, unfortunately, a political catchword. Every proposal for the state control of medical services emphasizes the need for prevention rather than cure. This goes without saying, but it is not just to blame and throw the onus on the medical profession. The profession is even unjustly accused of fostering illness for pecuniary and selfish motives. This is untrue, for any survey of the progress of medicine in this century alone will prove that through the efforts of the medical profession many grave diseases have almost disappeared. Plague and pestilence have been abolished in white countries and mitigated and controlled in those less fortunate. Smallpox, typhus fever, typhoid fever, epidemic dysentery, are all rare diseases today; the less severe but still deadly scarlet and other infectious fevers are occasional instead of endemic. Fifty years ago most practitioners made a considerable income from typhoid fever, today it is a clinical curiosity. Similarly, deficiency diseases—cretinism, myxedema, rickets and many others have receded before the practical application of the results of medical research. The study of vitamins and hormones has permitted the relief and cure of many long-standing and problematical disabilities. Modern surgery and radiotherapy have reduced greatly the number of those formerly permanently invalided by tumor growth and other afflictions now amenable to operative treatment. The list can be continued and expanded, but it is clear that the profession has been very active in the abolition and reduction of human morbidity. In fact, it is fair to state that no profession is so busy with the destruction of the source of its livelihood.

—From "Yesterday, Today and Tomorrow," by PROFESSOR J. B. DAWSON, in *New Zealand Med. J.*, June, 1944.

Syphilis in Industry

IN THE past numerous publications in regard to venereal diseases and industry have been quoted, and the current reports indicate continuation of efforts to work through its various branches. This has been done mainly by approaching the medical departments of large corporations. Unfortunately a relatively small percentage of industrial managements has so far been properly educated. In many plants men are still being discharged or refused work if they have syphilis, regardless of the status of their disease. One report has been uncovered that indicates an approach through the medium of a labor organization. The Eecutive Board of the California State Federation of Labor has recommended compulsory blood tests for all future members of the union in California. The co-operation of public-health facilities and the California Social Hygiene Association has been obtained. A thorough educational program is being conducted among the entire union membership. In these days of such constant bickering by some labor groups, it is pleasant to find a good word to say in their favor.

—From "Syphilis," by G. MARSHALL CRAWFORD, M.D., in *New England J. Med.*, January 18, 1944.

Political Syphilis

IT is interesting to note how writers and speakers dealing with contemporary themes are obliged to fall back on medical terminology to express their ideas. Thus Sigmund Neumann of the Department of Government of Wesleyan University, writing in the *New York Times* of November 26, 1944 about how the social basis of German National Socialism, or Hitlerism, must be attacked after the war, says that that social basis originated "in the frustrated middle class of inflation days, the rootless unemployed of the great depression, and the smaller though articulate group of young soldiers of fortune who did not find their way home from the battlefields of the last war and led the march right into the second World War. The aftermath of this world conflict will bring an even larger group of these crisis strata to the fore in Germany and elsewhere. Fascism is 'political syphilis,' and thus an international problem." "Political syphilis" is an apt term. Fascism has epidemiological aspects that expose other lands to infection. The point is that our social disorders like Fascism are sicknesses very comparable to the diseases of the body. No other comparisons, even when correctly made, can be so apt. And it is to medicine that our social doctors should look for curative techniques. They will have to discover a penicillin that will cure Germany. Most of the methods proposed are calculated to feed the disease and to "lead directly to the creation of a Hitler myth."

—Editorial, *Medical Times*, January, 1945.

Baggy Pants

WHEN fibers in a fabric are free to slip one upon another, they gradually wear each other down. Some fibers also tend to stretch. When they do, they work out of shape and pull open at seams. Anti-slip processes are designed to overcome these faults by holding fiber structure in place. The Monsanto Chemical Company has offered a rather novel solution of the problem with "Syton," a dispersion of minute particles of silica (originally sand) in water. When applied sparingly to a fabric and allowed to dry, the dispersion leaves upon the surface of each fiber an almost imperceptible layer of submicroscopic particles (0.04 to 0.06 micron in diameter). The resulting non-skid fibers stay in place, stabilizing the fabric without stiffening or seriously affecting the "hand" of the goods. If the treatment is applied to bulk fibers, spinning and weaving are improved, although carding is more difficult, since the fibers should be slippery at this stage. In one application, the process is said to make stockings less likely to run.

—From "On Baggy Pants," in *Industrial Bulletin* of ARTHUR D. LITTLE, INC., January, 1945.

Rubber Itself

RUBBER itself is non-irritating to the skin. To make it serviceable and to give it the necessary properties (durability, hardness, resistance, weight, colour, elasticity, etc.), required by diverse rubber commodities, it must be treated. It is a vital raw material and present production requirements have, of necessity, introduced many new technical processes and chemical compounds in the manufacture of rubber goods. Many of these chemical agents can cause dermatitis. Every finished rubber commodity is a complicated complex of chemical compounds, containing many substances which can harm those individuals, who for some reason or other have an increased tissue capacity to react to them. From the point of view of preventive medicine, it is essential to establish the individual allergens responsible for disease processes arising from the manufacture of rubber and from finished rubber goods. But from an office point of view the search for a specific allergen is not necessary. Where a finished rubber commodity is suspected to be the cause of a dermatitis, a patch test should be done with the rubber itself. If the test is positive, further steps towards identifying the specific allergen or allergens responsible can be undertaken if necessary.

—From "Contact Dermatitis from Rubber Dress Preservers," by JAN FROOTKO, M.D., in *Clinical Proceedings*, the Journal of the Cape Town Post-Graduate Medical Association.

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Volume 14 FEBRUARY, 1945 Number 2

Special Announcement!

—Notice of Cancellation of Third War Conference on Industrial Medicine and Post-War Planning—

As a measure of cooperation with the Office of Defense Transportation in its effort to cope with the present emergency in hotel and transportation facilities, our Third War Conference on Industrial Medicine and Post-War Planning scheduled for April 23-28, Drake Hotel, Chicago, has been cancelled.

—Edward C. Holmblad, M.D., Managing Director,
American Association of Industrial
Physicians and Surgeons.

"Again and Again . . ."

There are bureaus of industrial hygiene in health departments in 38 states, and in a number of counties and municipalities in which industrial hygiene work is being done. More than 400 specially trained doctors, nurses, engineers and chemists are employed, and about a million and a half dollars are being spent by the states and a half million by the Public Health Service for this purpose. The Public Health Service has a splendidly equipped laboratory set-up employing 120 workers, 60 of whom have been trained and allocated to departments of health for industrial hygiene work. Never has there been anything but the highest commendation for the fine work these agencies are doing. The only criticism ever heard is that there isn't enough of it. There could be enough of it if the legislative appropriations were larger. The logic of the whole record of the existing bureaus and services, their experience, their *professional* personnel, and the outstanding quality of their results to date call for them to be made larger, by legislative support, Federal and state. This would amplify and extend the good work being done.

But now comes a renewal of last year's proposal, not to get enhanced results, but *to duplicate the results already accomplished.* H. R. 525, introduced in Congress on January 3 and referred to the House Committee on Labor, is the same bill, *word for word*, that was known last session as H. R. 4371. That bill and the circumstances attending its "hush-hush" promotion, were discussed in "Lay Politics in a Medical Field," in Industrial Medicine, 13:5, 406-408, May, 1944. H. R. 525 is, as its predecessor was, a Labor Department bill. And it, like the one before it, aims to provide for the Labor Department to cooperate with "state agencies administering labor laws in establishing and maintaining safe and proper working conditions in industry *and in the preparation, promulgation, and enforcement of regulations to control industrial health hazards.*" It would authorize $5,000,000 a year to be allotted, by the Secretary of Labor, "for use by cooperating state agencies administering labor laws on the basis of (1) the population; (2) the number of wage earners; (3) the special safety and health problems in industry; (4) the number of workers afforded protection by the state laws and the cost of proper and efficient administration of such laws; and (5) the financial needs of the respective states." The money so allotted to any state "shall be expended solely in carrying out the purposes specified. . . . and in accordance with rules and regulations prescribed by the Secretary and the plans jointly developed by the agency administering the labor laws of such state and the Division of Labor Standards and approved by the Secretary of Labor. *In the operation of such plans the available services and facilities of public health authorities in the field of industrial hygiene shall be utilized.*" The Secretary is to have a "Safety Advisory Commission . . . hereby authorized and directed to recommend . . . reasonable standards, methods, and procedures for establishing safe working conditions in industry with a view to encouraging more effective control of hazardous conditions by the several states." There will be the usual "such employees," appointed by the Secretary, and the usual fixing of their compensation. An additional quarter-million per year for "all necessary expenses" in administration is to be provided.

The arguments against H. R 525 are the same as against H. R. 4371. We repeat them here:

1. Industrial hygiene is a health matter, not a labor matter.

2. Industrial hygiene activities are now being handled, *and excellently handled*, by the Federal and state public health officers, through their Divisions of Industrial Hygiene, and their sanitary, engineering, laboratory, nutrition and other public health facilities.

3. The present effort to extend the scope of the Labor Department's authority to the control of industrial health hazards and to "special safety and health problems in industry," in so far as health and health hazards are concerned, disregards the obvious fact that such extension would duplicate existing facilities. This duplication is completely unnecessary, to say nothing of the fact that the proposal involves a wholly needless expenditure of taxpayer's money.

4. Health departments have the ability to carry on health and hygiene services *impartially*. This is inherent in their professional status for this status not only demands the ability but also imposes the duty to be impartial. No physician, no engineer, will risk his

Based on findings of extensive x-ray chest surveys in the past three years, it is estimated that at least half a million cases of active tuberculosis are hiding in *apparently healthy* population groups.

How many unsuspected TUBERCULAR CASES among your employees?

Obviously, every employer would like to know whether, and how many of, these hidden cases are in his plant. And certainly the employee so afflicted should know about it—when the disease is still in its early stage and most responsive to proper medical treatment, and the outlook toward complete recovery is brightest. Too, the temporary isolation of these individuals would eliminate the danger of infection to fellow employees.

Today, the economical G-E Photo-roentgenographic method of conducting x-ray chest examinations of groups of people is the basis of the greatest anti-tuberculosis campaign of all time.

As pioneers in the development of photo-roentgenographic equipment for mass chest surveys, we invite you to draw on our wide and varied experience, the better to evaluate this survey method and its possible application to your employee welfare program. Ask for Publication D12.

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reputation by being anything but impartial. This, however, cannot be said of those whose tenure of position depends on the good will of pressure groups; the official careers of such are mosaics of carefully-graded preferences and partialities.

THESE arguments, and others that suggest themselves, are more cogent than ever in view of the inclusion in H. R. 525 of the provision that 'the available services and facilities of public health authorities in the field of industrial hygiene shall be utilized.' Are these 'weasel words?' Does the 'shall be' mean that the 'available services' are to be asked, or to be ordered? Or will the next step be to insure the desired state cooperation by holding out the bait of larger allocations from the five million to those states which will transfer their industrial hygiene activities from the state health to the state labor departments. In some such way the 'available services and facilities' could be got around and wouldn't be needed. No one familiar in any respect with current bureaucratic interpretations of Acts of Congress, nor past bureaucratic pressures on state governments through allocations of Congressionally-appropriated funds, can fail to foresee the conflicts of authority, the confusions and duplications, and the insidious pressures that are inevitable here. But here the possibilities are more or less evident. What else lurks in the disguised intentions of the smooth way in which the *'enforcement of regulations to control industrial health hazards'* is woven into the text of the bill? Or in the powers delegated to the 'Safety Advisory Commission,' which would authorize it to confuse and interfere with health regulations and procedures already put into satisfactory effect by the public health authorities? And the carefully detailed basis of the allotments by the Secretary, to the 'cooperating state agencies administering *labor* laws?' Why not the 'state agencies administering *health* laws?'

From the standpoint of all persons interested in industrial health *and from the standpoint of all taxpayers* THIS BILL SHOULD BE DEFEATED!

Essential Requisites

WE BELIEVE the practice of industrial medicine and surgery would be vastly benefited by immediate and continued attention to the following:

STANDARDS of industrial medical practice developed and promulgated by industrial physicians and surgeons for medical and health services in large and small industries.

THE ESTABLISHMENT by industrial physicians and surgeons of an agency to act as liaison between industrial medicine and industrial management for the interpretation and application of scientific knowledge to common problems.

STANDARDS for, and introduction of, courses in industrial health for medical schools—prepared and sponsored by industrial physicians and surgeons.

RECOGNITION of the industrial medical department, in whatever size and however constituted, as a *professional* corollary of management, and responsible only to *top* management, with remuneration on a professional instead of an employee basis.

Central States Meeting

—Abstracts of Proceedings of the Mid-Winter Scientific Sessions of the Central States Society of Industrial Medicine and Surgery, Chicago, December 8, 1944—

THE regular midwinter scientific meeting of the CENTRAL STATES SOCIETY OF INDUSTRIAL MEDICINE AND SURGERY, comprised hospital clinics at St. Lukes and Cook County Hospitals in the forenoon; a paper on penicillin therapy in the afternoon session, followed by a panel on "Fixation of Fractures," an interesting dinner talk by COL. JOSEPH TINER, of the Chemical Warfare Service, relating to experiences overseas, and a panel on "Head Injuries."

St. Luke's Clinic

THE first number on the St. Luke's Clinic program was the "grand rounds" (clinical pathological conference) with a demonstration of clinical and pathological material of three autopsies by DR. EDWIN F. HIRSCH and staff.

Case No. 1, a male of 75 years, showed obstipation, abdominal distention, and hematuria. Repeated transfusions were done and also a cecostomy, with no relief. The autopsy findings disclosed, among other things, carcinoma of the rectum; ulcers of the transverse colon with perforation; papilloma of the left kidney; sacculation of the bladder; marked atheroma of the left aorta; general peritonitis.

Case No. 2 was a male, 74 years of age, showing congestion of the lungs with fluid at the bases. This was the fourth episode of acute heart failure. The patient was comatose and there was no response to therapy. The autopsy findings disclosed infarction of the myocardium; atheromatous changes in the aorta; congestion of the liver and the spleen; and pneumonia of the left lung.

Case No. 3 was a male of 57 years; complaint of headache, a mass in the left flank, and other findings especially suggestive of tumor of the cerebellum. Clinical diagnosis was tumor of the cerebellum which had metastasized from the lung. The autopsy findings showed broncogenic carcinoma of the left lung at the left apex with metastases in the brain; and an atheromatous aorta.

Subsequent discussion touched upon the considerable experience at this hospital with bronchogenic carcinoma, showing an incidence of 172 cases over 10 years, which is about the same number as experienced at Tulane.

A review was then given of the condition known as periarteritis nodosa, because of the unusual characteristics of the disease. The small and medium-sized arteries are affected and the condition is largely a focal one. The first discussion of this appeared in the literature in 1866-68, and there have been much interest and numerous articles recently. The etiology is not clear; at first there was a question of lues; hypersensitivity is more probable. The name is not exactly descriptive of the condition, and nodulation is not common.

The symptoms and affected organs were outlined. The lung is commonly involved, with considerable fibrosis and pneumonitis; the heart is also frequently involved; the kidney is the most commonly involved organ; the gastrointestinal symptoms are likely to be puzzling, for they consist of anorexia, vomiting, and similar conditions which suggest a toxic condition; cholecystitis is not uncommon. The spleen and the joints are commonly involved, the latter exhibiting a severe myalgia. The laboratory findings are apparently those of a mild infection and a mild anemia. There is nitrogen retention in about 60% of cases.

There are four characteristic phases of the disease: (1) necrosis (in the media and intima); (2) an infiltration of white cells; (3) healing; and (4) recanalization.

The treatment is not specific, because the etiology is not settled. The disease is a great mimic and may involve many organs, hence the difficulty in diagnosis and differential diagnosis.

DR. EDWIN RYERSON discussed a case demonstrated by x-ray films of a boy of 3½ years, who in 1941 sustained a crack in the tibia resulting in non-union. Another surgeon did some wiring which did not produce the desired results. More recently grafts from the mother were placed on each side of the fractured bone and held in place with metal screws. This is apparently giving results at the present time, with apparent filling in, on the x-rays, in the medullary canal. In discussion it was shown that osteogenous bone grafts need not be used in such cases, and that, incidentally, in the case of the patient the mother was his stepmother instead of his real mother. Two other similar cases have occurred since that time in the practice of DR. RYERSON.

DR. WILL LYON discussed cases involving a question of Volkmann's isthemic contracture in dislocations of the elbow. Such conditions require immediate treatment or one cannot be distinctly helpful. In the present case, the requirements for a diagnosis of Volkmann's contracture were cited as follows: (1) the injury producing the lesion (this is usually supracondylar fracture); (2) absence of radial pulse; (3) paresthesia of the skin; (4) swelling around the elbow; (5) pain; (6) cold hands and forearms; and (7) swollen and blue hands. In the present case, the patient did not have the latter three of these requisites. It is quite probable that the patient tore the fascia around the cubital fossa during the injury to the elbow, which did not limit the extravasation of blood. In such instances, there is later a muscular fibrosis and contraction of the fingers with the resultant shiny characteristic of the skin, and with thermal changes in the skin. A demonstration of the patient was given, pointing out the characteristic findings and the treatment.

DR. YOUNG gave a short discussion and demonstration of patients concerning Buerger's disease. One was a case of gangrene of the toes and cold leg. A sympathectomy and amputation of the toes was performed resulting in good recovery. The patient, however, had trouble because he smoked some; after stopping smoking he was symptomless. Two other similar cases were discussed. Heparin curves were used diagnostically and sodium tetra thionate was used therapeutically.

DR. JACOBSON demonstrated a male patient, age 33 years, by occupation an intestine trimmer in a packing house, who had previously had a small wound of the finger. He became acutely ill, having pain in the arm and shoulder; he was confined to his home for six weeks. The head was pulled over to the left. His temperature was 102°F, and the wound had healed previously. The epitrochlear and acillary glands were palpable. The shoulder tissues were tender and indurated. Sulphadiazine apparently did no good. The laboratory findings showed red cells 3,800,000; 75% hemoglobin; white cells 4,000, with 51% lymphocytes. There was a positive agglutination test for brucella. The diagnosis was brucellosis. There were several intermittent attacks, and these were accompanied by arthritic changes and symptoms.

Forenoon, December 8, 1944

HOSPITAL Clinics: St. Luke's Hospital; Cook County Hospital.

Afternoon

PRESIDING: FRED M. MILLER, President.

"Penicillin Therapy in Relation to the Problems of Industrial Medicine and Surgery" —WALTER S. PRIEST, Associate in Medicine, Northwestern University Medical School.

Panel—"Fixations of Fractures"—Moderator: FREDERICK W. SLOBE, President, American Association of Industrial Physicians and Surgeons; COMMANDER M. H. TIBBETTS, Chief of Orthopedic Department, U. S. Naval Hospital, Great Lakes, Illinois; LT. COLONEL PHILIP LEWIN, Chief of Orthopedic Department, Mayo General Hospital, Galesburg, Illinois; WILLIAM R. CUBBINS, Professor of Bone and Joint Surgery, Loyola University School of Medicine, Chief of Fracture Department, Cook County Hospital; A. H. DIEHR, Chief of Service, Orthopedic Department, Missouri Baptist Hospital, St. Louis, Missouri; H. W. WELLMERLING, President Elect, Central States Society of Industrial Medicine and Surgery; Orthopedic Surgeon, Sloan Clinic, Bloomington, Illinois.

Evening

SPEAKER: COL. JOSEPH TINER.

Panel—"Head Injuries"—Moderator: EDWARD C. HOLMBLAD, Executive Director, A. A. I. P. & S.; PERCIVAL BAILEY, Professor of Neurology and Neuro-Surgery, University of Illinois, College of Medicine; HAROLD C. VORIS, Clinical Professor of Neurological Surgery, Loyola University School of Medicine; PAUL C. BUCY, Professor of Neurology and Neurological Surgery, University of Illinois College of Medicine; ROLAND P. MACKEY, Associate Professor of Neurology, University of Illinois College of Medicine.

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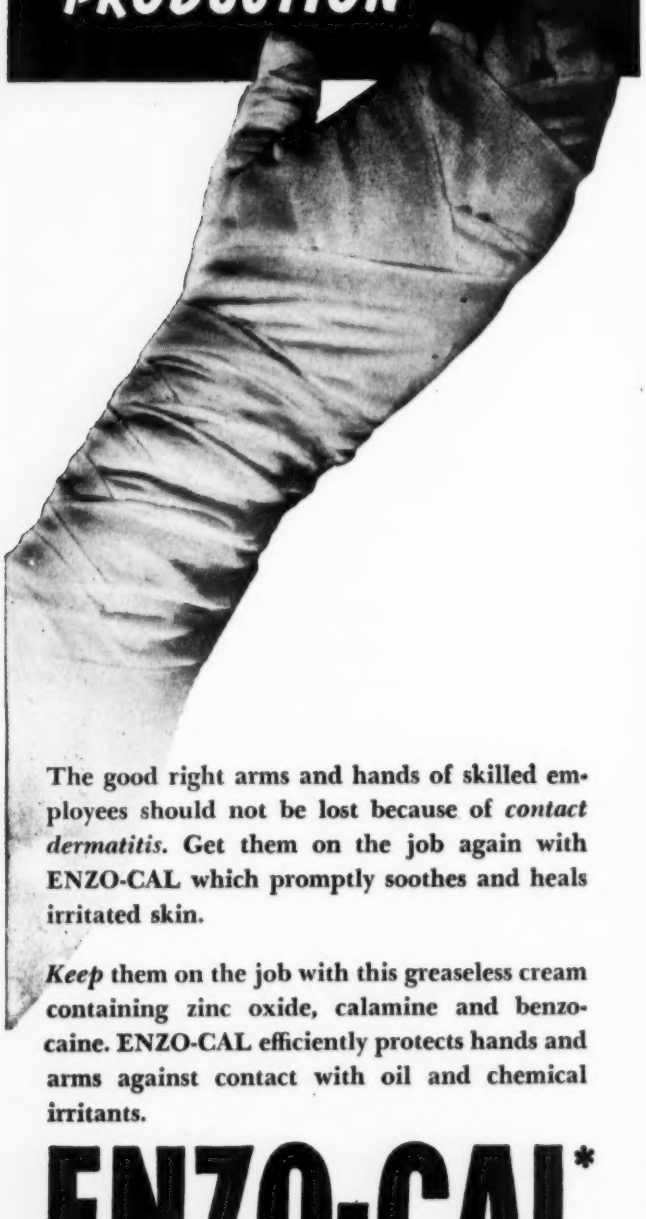

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DR. KILBOURN demonstrated a case of fracture of both bones of the leg. Comminuted fracture of the tibia was plated with screws and was apparently healing in good order. A lumbar sympathetic block was also done as a preventive measure. Another case was demonstrated, in a fracture of the tibia by treatment with three screws.

DR. LOREN CHANDLER presented and discussed a case of periosteal osteochondroma in a child patient. Another case was mentioned of an older person in which there was a fracture of the intertrochanteric portion of the femur plated through the trochanter.

A patient was demonstrated in which there was degeneration of the head of the femur, with much pain. The question as to whether ankylosis should be allowed to occur or the joint should be immobilized. A vitallium cup was put on, and now the patient has 50% range of motion. Because of adductor pull, the obturator nerve was sectioned.

In a case of protusion of intervertebral disc, fusion of the lumbosacral region was done, taking the bone from the wing of the ilium. In demonstrating the patient nine days postoperatively, it is found that he can now roll over voluntarily and that he will be out of the hospital in two and a half to three weeks.

DR. HARRY MOCK, in concluding the clinical demonstrations, showed a case of severe upper arm injury with the loss of a great deal of muscular tissue and bone, the lower arm, however, being in good condition. It was decided therefore to do a skeletal fixation and tibial graft. The skeletal fixation apparatus has been worn now for a period of 19½ months without evidence of infection. The patient unfortunately fractured his graft in an auto accident about two months ago, but he is now getting callus around the graft.

Other cases were discussed, including one of fracture of the humerus and several of fractured tibiae.

The presentation was concluded with a discussion of the amputation of useless members, one case being demonstrated in which the subject had from birth been unable to use his legs to walk because of deformity in both legs In this case, refrigeration anesthesia was used as the method of choice, without pain and without shock, having applied a tourniquet to both legs in conjunction with the refrigeration, which takes away the necessity for metabolism in the legs, which is a very important principle. The patient was demonstrated showing recently fitted prothesis on both legs with which he was learning to walk. Several other instances of amputation of useless members were illustrated by lantern slides.

Penicillin Therapy

—In Relation to the Problems of Industrial Medicine and Surgery—

WALTER S. PRIEST, M.D.,
Associate in Medicine, Northwestern University Medical School

SO MUCH information regarding the use of this new chemotherapeutic agent has been placed in the hands of physicians by the manufacturers, the National Research Council, and the numerous articles which have appeared particularly within the last two years, that I am sure most of you have some idea as to its possibilities and limitations. However, a crystallization of information may be of value.

As one goes about the wards of even a large teaching hospital, one can't help but be impressed by the confusion that exists in the minds of many as to just what may be expected from this new agent, now that the romance of its discovery and its popular appeal have been superseded by the facts of clinical and experimental investigation.

Since most of you are rather intimately connected with industry, I think it is of interest, though something again you probably already know, that if it had not been for the engineering brains and vision of men in the industrial field

—and I am not talking about doctors—our present supplies of penicillin would have been impossible. At the start penicillin was grown as a surface mold on broth media. The broth was put through several extraction processes and the end result was a powder, either a sodium, calcium, or ammonium salt of penicillin. The flask method of production permitted, of course, relatively limited amounts, and this was the situation which existed up until the latter part of 1942 when mycologists, chemists, and industrial engineers got together and found that penicillin could be grown in submerged culture. This immediately opened up possibilities for large scale production.

In the flask or surface culture type of production, th. large incubating rooms, with their rows upon rows of two-liter flasks, took up a lot of space and still resulted in only relatively small amounts of penicillin, considering the need. The development from this type of manufacture to that now commonly used occurred during 1943, so that now penicillin is grown in tanks containing 40,000 gallons of media. Even so, this material has to go through a long series of extraction processes, so that from 40,000 gallons of original media, you have 15 gallons of material, which has yet to be dried or or lyophiled to obtain the commercial penicillin salt. When one considers that 23 concerns are manufacturing on this basis, one can appreciate how it was possible to double and treble and quadruple the amount of penicillin to the point where now it is available for all necessary purposes.

Indications for Use

IF ONE decides to use penicillin in a given case, there are certain questions that one must ask oneself. These will determine the use. For, in spite of its romantic appeal and the undoubted miraculous cures, penicillin is far from being a cure-all.

One of the first disadvantages is that its use is a hospital procedure, and one cannot employ it in the home unless one has a trained nurse or a very intelligent member of the family who can be taught to give hypodermic injections. The frequency with which these must be given precludes their use in the office except in a very few instances which I will mention later.

The next point is, are you dealing with an infection, or an organism, or a condition in which the offending organism is pencillin-sensitive. Regarding this, I think it might be well to review those organisms to which penicillin is sensitive. On the left, in the accompanying table, are the penicillin-sensitive organisms; on the right the insensitive ones. The minute one realizes one has a condition due to any one of these insensitive organisms, one might just as well forget about penicillin.

The organisms concerning which we are going to have to decide whether we are to use penicillin obviously belong to the Neisseria group, the staphylococcus, the streptococcus, and the spirochetae. The other ones: anthrax, actinomycosis, spirochete of relapsing fever, the gas-producing organism, (the clostridiae) are organisms we run across once in a while, and they certainly should be borne in mind, but they do not constitute the common problems any more than the cholera organism does.

TABLE I.

ORGANISMS SENSITIVE TO PENICILLIN	ORGANISMS INSENSITIVE TO PENICILLIN
Actinomyces bovis	Blastomyces
Bacillus anthracis	Eberthella typhosa
Borrelia novvi (spirochete of relapsing fever)	Escherichia coli
Clostridium botulinum	Hemophilus influenzae
Clostridium tetani	Klebisella pneumoniae
Clostridium welchii	Micrococcus albus (some strains)
Corynebacterium diphtheriae	Monilia albicans
Dpilococcus pneumoniae	Monilia candida
Neisspria caterrhalis (Micrococcus catarrhalis)	Monilia kruzei
Neisseria gonorrhoeae	Mycobacterium tuberculosis
Neisseria intracellularis (Meningococcus)	Proteus vulgaris
Staphylococcus albus	Pseudomonas acruginosa (Bacillus pyocyaneus)
Staphylococcus aureus	Pseudomonas fluorescens
Streptobacillus moniliformis	Salmonella enteritidis
Streptococcus pyogenes	Salmonella paratyphi
Streptococcus salivarius	Serratia marcescens (Bacillus prodigiosus)
Trepnoema pallidum	Shigella dysenterine
Vibrio comma	Staphylococcus albus (some strains)
*The Leptospira group	Streptococcus faecalis
*Spirillum minus	
*Streptobacillus moniliformis	

*Probably sensitive on the basis of experimental and a few clinical observations.

Thus the physician's first responsibility is to determine his organism. The time required to do this, a matter of 24 hours, is no deterrent. If the organism or the condition is going to be affected by penicillin, the loss of the 24 hours is not important in most instances.

The question might be raised, why bother to determine the exact condition of the patient since the penicillin can't hurt him? That is, in large measure, true. However, one must remember that there are occasional cases of extremely severe reactions to penicillin. I have seen one very severe case of exfoliative dermatitis resulting from penicillin given to a patient whom it couldn't possibly help.

Also, when you consider that penicillin has to be given every three hours by some form of injection, I think it is rather unfair to subject a patient to that number o' injections if there is no reasonable hope that you are going to do him some good by it. For example, I saw a patient last week who had had a urinary tract infection and who suddenly ran a sharp temperature with a chill Penicillin was immediately started. What he had was a pulmonary embolus, and by no stretch of the imagination could penicillin have done him any good. It is true that it didn't do him any harm, and the argument was, "Well, he had an infected urine, he had a chill, he had fever, and, knowing penicillin wouldn't hurt him, we thought he might just as well have some." It would have taken only a short while to find out whether he had a penicillin-sensitive organism in his urine, which he didn't have, and to wait and see whether he was developing anything else in which penicillin would be effective.

Another example involved two cases of true influenza pneumonia, with no pneumococci in the sputum at all. They were given penicillin. These happened to be two medical students. About the third day one of them went on a strike. He said that he simply wouldn't take any more injections in his hip. Penicillin couldn't possibly do the influenza bacillus any good.

Another patient was brought in one evening with findings in the chest, and, without waiting to get a chest film, and with no examination of the sputum, penicillin was started. The patient turned out to have a tuberculous pneumonia the next morning.

Also I have seen penicillin used in terminal uremia, and postoperatively in absolutely clean bone and joint surgery.

Now, such use of penicillin certainly is to be deplored. It is a waste, it serves no purpose, and it at least does the patient the harm of repeated injections, and may possibly serve to sidetrack us from the consideration of what is actually wrong with him.

Another situation where one is strongly tempted to use penicillin is in postoperative peritonitis. When there is a ruptured appendix, a ruptured bowel, and the patient begins to do badly, there is that temptation. Yet if one will bear in mind that the organisms which are usually at fault in a situation of this kind not only are not affected by penicillin but actually destroy penicillin, I believe one will hold off and concentrate on other and better proved methods of combating peritonitis.

On the other hand, we saw, not so long ago, a huge ascites from which a diplococcus was recovered, probably N. catarrhalis, and that patient did receive penicillin. So far as that local condition was concerned, he got better and his general condition improved because of clearing up what was a beginning peritonitis from a penicillin-sensitive organism. We must keep our medical thinking straight.

But there are bound to be certain septic processes in which experience has taught us the infective organism is most apt to be streptococcus, staphylococcus, or one of the penicillin-sensitive organisms. In such a case we may not be able to get a bacteriological culture or smear. The blood cultures may be negative, and yet, if we have reason to believe that one of these organisms is responsible, then

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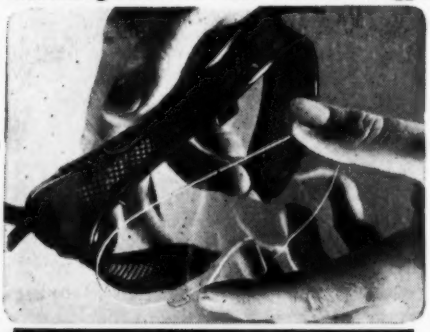

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I think we undoubtedly are justified in using penicillin.

For example, a woman was brought into the hospital following a criminal abortion. She had run the usual course; became septic. Sulfonamides had been tried without avail, and she was really in a desperate state. Penicillin was started, with rather prompt response which did not hold. The dose was doubled, and she made an uneventful recovery. In that particular case we didn't wait for the uterine cultures to be reported. They did show hemolytic streptococcus, but we used penicillin because in most of such cases we have reason to believe the organism is a streptococcus.

I believe the same thing would be true in puerperal fever. Also, when there is evidence of sepsis following a carbuncle or an infected wound of any kind, even without a positive blood culture, I think it is absolutely justified, in fact it is imperative, that penicillin be used. I would feel the same way about erysipelas.

Now a word about blood cultures. Whether they will be positive depends to a certain extent upon the training of your technician. I know that we have been successful when other technicians have failed, and that is undoubtedly true elsewhere. One very striking example was a man who had a septic temperature; there was no obvious portal of entry; the diagnosis was indefinite; the blood cultures were negative. Sulfonamides were ineffective and, rather in desperation, his physician had given him penicillin which was followed by very prompt improvement, which, however, did not hold. He was again given a course of penicillin, with the same experience. His physician finally gave up the idea that it was a penicillin-sensitive organism, and we tried every type of laboratory test to find some other infective organism, but without success. Finally my own technician did a blood culture and found a staphylococcus. In talking to the main laboratory technician, she said, "Oh, yes, I found that several weeks ago, but I didn't think it meant anything." She thought she had a contamination in her blood culture, failing to realize that the type of plate she was getting simply couldn't have been a contamination. Knowing then that we were dealing with a staphylococcus septicemia—and staphylococcus being at times a relatively insensitive organism—we gave the man 400,000 units of penicillin a day, and he is well now. We still don't know what the portal of entry was. I think it might have been an endocarditis, although the other findings were not sufficient to make a diagnosis.

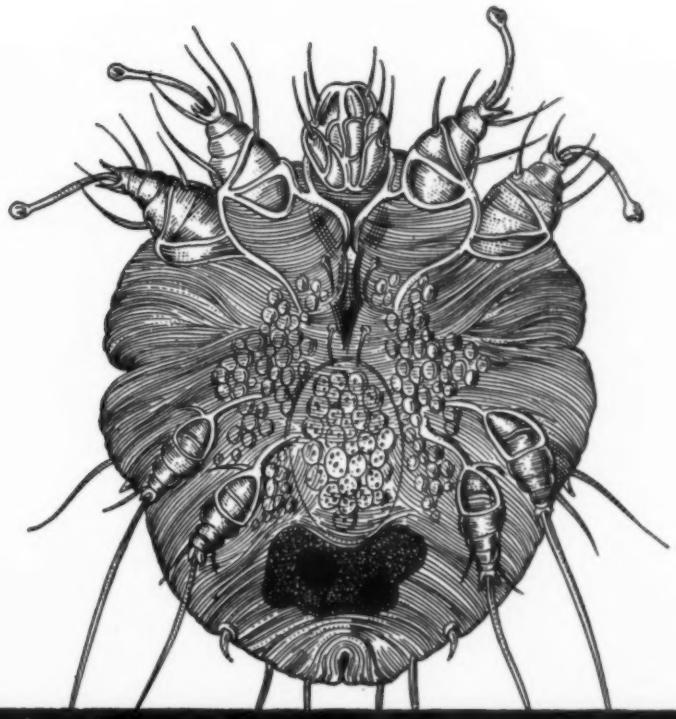
Now, inasmuch as penicillin therapy is a hospital procedure, one is not going to think of using it in the case of a single furuncle, or in a simple abscess, nor in Vincent's angina (which it will cure). In other words, if you have an ambulatory patient, whom past experience tells you can be kept ambulatory and still get well, there is no point in hospitalizing that individual just to give him penicillin.

On the other hand, if you are dealing with simultaneous multiple furuncles, I think the patient has a little better chance if he can be hospitalized and treated with penicillin. Many of the unbroken-down furuncles will disappear. We have seen that happen. Certainly if I had a carbuncle, I would want to be in a hospital and get penicillin in addition to proper surgery. It cannot be emphasized too soon nor too often that penicillin will never replace indicated or proper surgery.

Use in Industrial Practice

IN SO FAR as industrial surgery is concerned, what are the particular situations where one can think of using penicillin? Whether it will or will not be used depends, of course, on the individual status of the physician in relation to the plant. If he is just the examiner, or the first aid man, or the plant sanitation adviser, he isn't going to have much chance. He may be able to treat an infected eye with penicillin; he might use it in primary closure of wounds, but that is about all. If, however, he is responsible for the treatment of the employee from the beginning to the end of his illness, then he will find some very useful fields.

The first one is that of venereal infection. In the



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1. Mackenzie, I. F.: Brit. M. J. 2:403, 1941.

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Army penicillin was used extensively in the treatment of acute gonorrhea when the supplies were limited—much to the horror of the public. But Army people are realistic, and lost time is the most serious thing they have to deal with. And so, when it was learned that acute gonorrhea could be cured by penicillin within 48 hours, naturally the men were given penicillin and were returned to duty.

The same thing certainly applies to industry. If, as the plant physician you have control over venereal disease when it is acquired, then you will have less lost time by treating your acute gonorrheas with penicillin even though you have to put them in the hospital; 10,000 to 15,000 units of penicillin intramuscularly every three hours around the clock for 48 hours will cure almost any case of acute gonorrhea.

In primary syphilis, the treatment is a little longer. Results as yet are not quite so definite, but there is good evidence now to indicate that 1,200,000 units divided into 60 doses, given continuously around the clock by intramuscular injection over a period of seven days, will produce better results than so far has been possible with other forms of treatment.

Wounds, of course, are something that every industrial physician has to contend with. Here our experience has come almost entirely from the military fronts, and the British have done more with this up to now than have the Americans. Florey himself—Florey being the man who took Fleming's discovery and started its clinical application—spent considerable time this last year in Africa and Italy, working out the use of penicillin in fresh and infected wounds. He believes, from his experience, that if you take a fresh wound and do a light debridement, clear out the foreign matter, suture it not too tightly, and, before suturing, sprinkle it or powder it from a blower with sulfanilamide containing from 500 to 1,000 units of penicillin per gram of powder, the wound does better, hospitalization is less, and the soldier is returned to duty in a much shorter time than has been possible with any other method.

A wound which is already infected is treated similarly except that penicillin instillation is used. The wound is cleaned out as best it can be; rubber tubes are inserted and left outside of the dressing; sutures are applied lightly; and then penicillin solution with from 250 to 500 units per c.c. is instilled into these tubes once or twice a day. There again Florey and his group report a marked reduction in loss of time, with better healing and less likelihood of bone involvement, if the wound is in the region of the bone.

In most of such patients, and certainly if fever should develop in the infected wounds, it is the better practice to give parenteral penicillin in addition; that is, 15,000 units, the usual average dose, every three hours intramuscularly until the fever is free. Of course, in these wounds the bacillus proteus and bacillus pyocyaneus will still develop. It appears, however, that we are now on the eve of another antibiotic which is effective against these two organisms, as well as some other organisms which are not penicillin-sensitive. This work is still so much in the experimental stage that little can be said about it. You have probably heard or read about streptothiricin and streptomycin. Just what these substances will do and their spheres of usefulness is still indefinite.

Use in Fractures

Compound fractures are likewise a type of injury that the armed forces have been very much interested in. These also occur within the province of industrial surgery. Here again the Army experience has been that if the wound is clean; if a little debridement is done; if the penicillin-sulphanilamide powder is introduced—and, incidentally, the combination of sulphanilamide and penicillin is better than sulphanilamide alone—and the wound sutured, in other words, changing from a compound to as near a simple fracture as you can get, the over-all end results are infinitely better than from any other form of treatment.

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compound fractures to quasi simple fractures on the spot, with the anticipation of better end results. We had one example, year before last, of a situation where this was not done. A compound fracture of the tibia and fibula was treated, we will say conservatively, for a matter of two weeks and it became very badly infected. When brought into the hospital the man was in a rather critical condition and all attempts at local cleaning up of this infection, plus the use of the sulfonamides in large doses, plus crude penicillin instilled into the wound, plus attempts at better drainage, were without avail. The man objected so to losing his leg that we kept on trying to save it. He developed a thrombophlebitis with terrific enlargement of his leg. He became septic; his cardiovascular system began to fail; and it was necessary to do a very rapid guillotine operation in order to save his life. After the leg was removed, we found not only a mullilocular abscess that had been drained by the drainage tubes, but also one that had not been reached—and I don't see how it could have been reached unless one had ribboned the leg. But it had kept feeding the septic process in his system. In addition to that, his thrombophlebitis had become infected, and he had pulmonary embolic phenomena on three or four occasions, so that his chances were certainly very slim had it not been for the proper surgery. Now, the only role that penicillin played (and he received large doses intravenously for many days) in that patient was to keep him alive perhaps a little bit longer until he could be persuaded to have his leg off. It was also used at the time of surgery, and I think enabled him to pull through a rather stormy postoperative course. Even after his operation, he developed another thrombophlebitis with a very deep-seated infection in his thigh which had to be drained; and there again I think penicillin was of help to us in combating the effects of that infection until the man could get well. He finally got well and is very happy over the fact that he has a prothesis rather than a coffin.

In the treating of compound fractures, I think one should certainly use penicillin parenterally as well as locally with the suturing of the wound and, of course, the proper treatment of the facture. There the dosage is the same as for any other condition, 10,000 to 15,000 units every three hours intramuscularly.

Use in Burns and Skin Grafting

AS TO BURNS, opinion is divided. Those who took care of the victims of the Coconut Grove disaster felt that it did no good. The British, on the other hand, take an opposite view; they believe that in dry burns the powder is useful, and that in the moist burns an ointment or wax made up of lanette wax, and soft paraffin, with from 500 to 1,000 units of penicillin per gram, and spread on the burn, promotes healing to a very large degree.

This same type of handling can be thought of in skin grafting. It is felt, from a rather limited experience so far, that the use of penicillin locally in areas to be skin grafted, particularly after burns, gives better results, the grafts take better, than has been the experience in the past. Here the penicillin can be used either as a powder in moist dressings with a solution of 250 to 500 units per cc. or in an ointment base. If one is going to use an ointment, one will have to make it up oneself. Some manufacturers are making ointments now, but these are not yet on the market. Ointment has to be made up under sterile precautions, which is not too difficult; and it will keep, once it is made up, at room temperature for a few days and in the ice-box almost indefinitely.

The severe spreading cellulitis that one can get in an industrial plant is the place par excellence for the use of penicillin. That is systemic use, of course, and again surgery must be done if it is indicated. Acute osteomyelitis is amenable to penicillin, but chronic osteomyelitis is not. Spreading osteomyelitis of the jaw and of the frontal bones, even though somewhat chronic, has been a fruitful place for the use of penicillin. But chronic osteomyelitis of the long bones has not responded at all favorably in anyone's hands.

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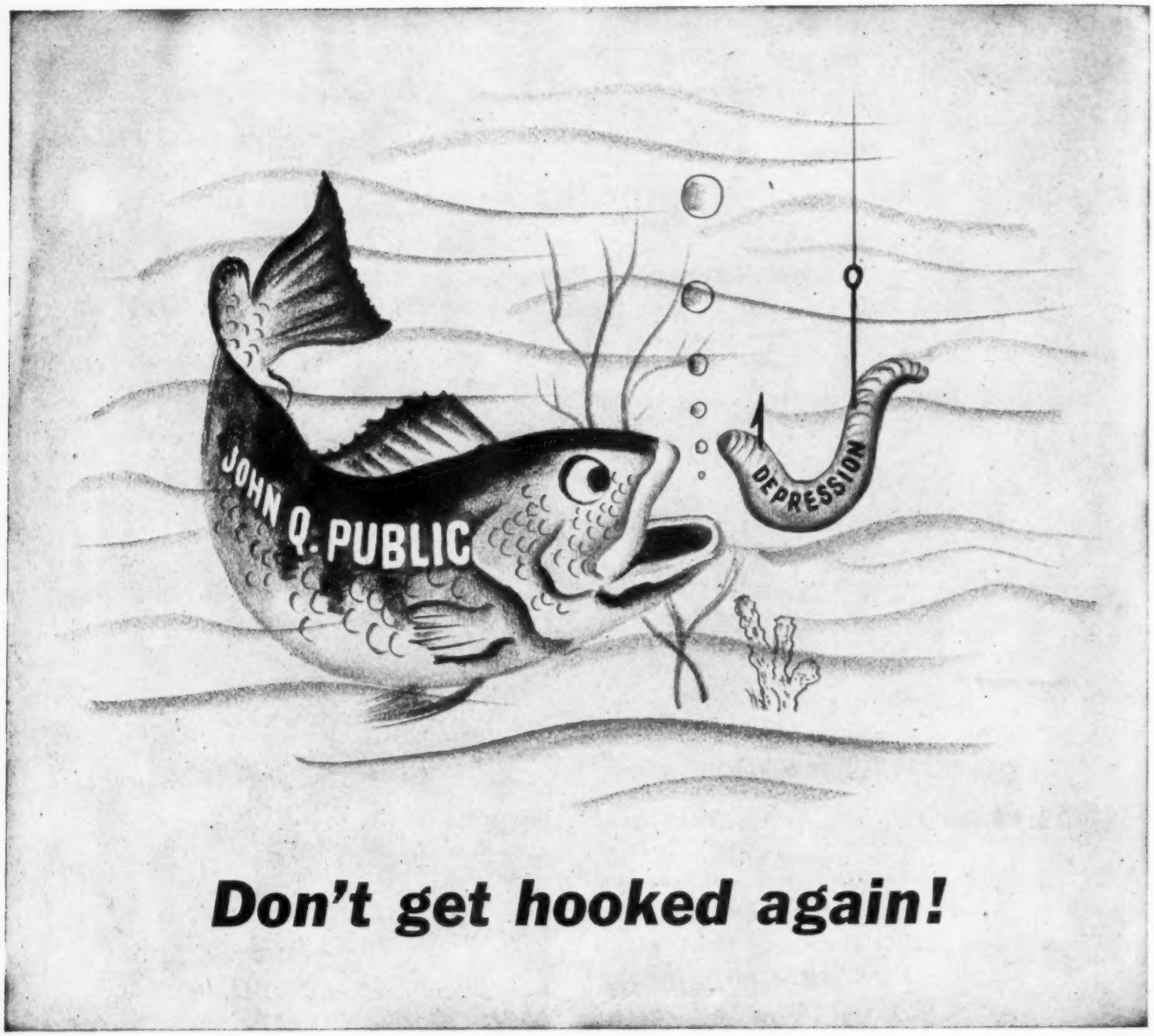

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tive organisms can be treated with this same solution of 250 to 500, or even 2,000, units per cc. The larger dose seems rather excessive, but the conjunctiva will stand it if your judgment indicates that it should be used. It can be dropped in the eye. The patient can be given a bottle of the solution, and instructed to instill it in the eye at about two- to three-hour intervals. In mixed infections of conjunctiva, clearing up of the penicillin-sensitive organisms does help nature to overcome the remaining organisms.

In the ear, acute otitis media has been treated very satisfactorily with penicillin given intramuscularly. Some instances of apparent early mastoiditis have been cured by the use of penicillin, by the usual method of intramuscular injection every three hours around the clock. In chronic otitis media and in acute otitis, where there is perforation of the drum, it might be instilled directly and the external canal plugged with cotton. At the same time it should be given parenterally. Results here are not quite so good, but this certainly is a field for its use. It does not require such long hospitalization, and sometimes no hospitalization at all in those patients who do not get the intramuscular injections.

In nose and throat conditions, in accessory nasal sinuses, no great success has been found either by the intramuscular injections or by the local use. Suppurating joints are a very fertile field. The joint should be aspirated, and penicillin, about 20,000 units in 10 cc., injected directly into it. Also, the patient should be given penicillin parenterally at the same time; Herrell, at the Mayo Clinic, has shown that the concentration of penicillin in the joint fluid will be about 50% of the blood serum level.

In gas gangrene, i.e., the clostridium infections, penicillin should be thought of, but only in large doses of at least 400,000 units a day, supplemented by the use of serum and proper surgery.

Methods of Administration

AS TO THE methods of administration; there are two which to my mind are the only really practical ways of giving it. First, is the intramuscular. I say first, not because I like it personally, but because I realize it is more practical than the continuous intravenous drip. The intramuscular injection has to be every three hours because between the second and third hour there is practically no penicillin in the blood following a single intra-muscular injection. But most conditions will respond if penicillin is given at three-hour intervals intramuscularly. The disadvantage is finding some place to give it after the third, fourth, or fifth day. My own preference, when you are going to give it over a period of time, is for the continuous intravenous drip.

It is really simple to give penicillin by continuous intravenous drip. The method here shown is from a patient, not a model. This patient was perfectly comfortable with this needle, a 21-gauge, 1¼-inch needle, cannulated into a small vein of the back of the forearm. It remained in situ for 28 days.

We have a patient in the hospital now who has had a needle in her vein for 15 days and she is perfectly comfortable with it. She eats, sleeps, and can even get out of bed if she wants to. Extreme mobility of the hand is possible when the needle is cannulated and if it is anchored properly by the adhesive. In my opinion, that is a much more comfortable way to get penicillin than being stuck in the thigh or the hip every three hours around the clock, with resultant disturbance of sleep, and so on. I know that, for some reason, in some cases, penicillin has been given every hour intramuscularly. How the patients stand it, I don't know.

Penicillin can also be given by a continuous subcutaneous infusion and continuous intramuscular infusion. There again I see nothing to recommend either one of these unless veins are out of the question. It can also be given intersternally. Of course, in meningitis it has to be given interspinally in addition to intramuscularly or intravenously.

We have just about covered the local methods of administration—the powder, either alone, that is the sodium salt as it comes, or in connection preferably with sulphanilamide blown on; or the solution of 250 to 500 units per cc.—you can go higher if you think you should—or in some ointment base, such as lanolin, wax, and paraffin. I see no reason why cold cream, zinc oxide and such bases should not also be used if one wishes to do his own experimentation with it. The preferable salt for local dusting however, is the calcium salt, which is not yet available, but will be, no doubt, some day. It is less irritating locally than the sodium salt, and irritation is something one has to look out for in using the sodium salt as a dusting medium.

Discussion

QUESTION: I would like to ask about the excretion. How rapidly is it excreted, either intramuscularly or intravenously?

QUESTION: How stable is the solution?

QUESTION: With regard to intravenous injection, how many units, and what dilution?

QUESTION: In extensive compound fractures, would you use it as a prophylactic?

DR. PRIEST: Penicillin is excreted very rapidly by the kidneys and that is the reason why it has to be given either by continuous intravenous drip or intramuscular injection at three-hour intervals. Recently it has been found that if one will chill the area in which the penicillin is going to be injected by applying ice caps, then make the injection, and then keep the ice cap on it, the ab-

sorption is delayed so that you can stretch out the frequency of administration to six or even eight hours. This is a rather simple thing to do, and it is very interesting. Just what will happen if you have a patient to whom you have to give penicillin over a number of days, as to what the effect of the repeated cold will be, I don't know. One will have to change his sites, it would seem to me, rather frequently in order to keep from getting tissue damage, because the ice bags need to be as cold as it is possible to have them.

Sixty per cent of any given dose of penicillin is excreted by way of the kidneys and it will appear in the urine within five minutes after an injection. The excretory rate then rises very sharply, and at the end of two hours, as I think I mentioned, almost all of the penicillin that has been given at that single dose has been excreted.

The stability of the modern penicillin is much better than it was at first. You may leave a solution of penicillin at room temperature for at least three or four days without any significant deterioration in potency. You can leave it in a 5°C ice-box almost indefinitely. Thus you need not concern yourselves about stability.

I think a good plan is to take the 100,000 units which come in the usual ampule today and make that up into a solution of 5,000 or 10,000 units per cc., if you are going to give it intramuscularly. You give your first dose, put the reminder in the ice-box, and use that the rest of the day. You will get no deterioration. If you decrease the dose—say later you give only 80 or 60 or 50 thousand units per 24 hours—that original solution will keep for two or three days in the ice-box without any trouble.

Now as to the strength of the intravenous solution. You decide what you are going to give in 24 hours, whether 50, 60, 70, 80, 100, or 200,000 units, or what, and put that in a liter of normal saline, or 5% glucose and that is the day's charge. Hook that up to the needle and let it drip. Fourteen drops to the minute from the Baxter apparatus will deliver a liter in 24 hours. If you wish to give two liters of fluid you step the frequency of the drops up to 28 or 30, and then put half the dose in the first liter and the other half in the second liter at the end of 12 hours.

As to the prophylaxsis of compound fractures, if I understand correctly, you mean how does one use it?

QUESTION: When you feel you are going to have an infection anyway regardless of your care.

DR. PRIEST: Yes. I think that is one of the points the British group made; that even after cleaning up the wound and sewing it, if they felt they were going to have infection anyhow, they would give penicillin intramuscularly even though there was no fever at the time.

QUESTION: Does it have any effect on tetanus?

DR. PRIEST: Yes.

Fixation of Fractures

—Panel Discussion—

DR. FREDERICK W. SLOBE; LT. COL. PHILIP LEWIN; DR. WILLIAM R. CUBBINS; DR. A. H. DIEHR; DR. H. W. WELLMERLING

CHAIRMAN FRED W. SLOBE: This is the fracture version of "Information Please." We don't have the N.B.C. hook-up, but we do have the experts here all ready to answer any questions that come to your mind.

DR. VALENTINE has selected a very broad subject—"Fixation of Fractures"—which obviously includes any type of splint or plaster; all types of traction, because traction methods are part of fixation to some degree, at least; open operation and internal fixation; multiple pins; external fixation; and even as DR. VALENTINE says, "eternal" fixation, although we hope it doesn't last quite that long.

We know there are many ways, or at least more than one way many times, to treat a given fracture, and that one can get good results by using one of several methods. For that reason we have differences of opinion, and sometimes these differences of opinion become very marked and quite antagonistic. We also know that most surgeons are individualists, and that they utilize the method which yields the best results in their hands, which is entirely as it should be.

Obviously no matter what a person hears or reads, he is going to use the method which yields the best results in his own hands, and in his own hospital. However, there are instances where one specific method is undoubtedly the thing to use in a given case. If a surgeon can't use that method, if he is conscientious, he gets someone who can.

We want our panel of experts here to speak very freely. We don't care how much they disagree. When it is all over, we are quite sure they are going to be just as friendly as they are right now.

Some questions were turned in earlier, and a few more this afternoon. These were directed to one or more of the panel members, and I will so refer them whenever possible. Any of the members of the panel not directly called upon may discuss any of the questions. We will be very glad to have them.

The first question is one about the so-called unsolved fracture. Kellogg Speed named it that, some years ago, but it is coming more near to solution all the time. It is our old bugbear, the intracapsular fracture of the neck of the femur. What are the best methods of reduction and fixation? That is directed to DR. CUBBINS and DR. WELLMERLING.

DR. CUBBINS: There is no question that this is still an unsolved fracture, but this failure of solution is due entirely to a failure to appreciate the pathology and the factors in the pathologic findings.

In order to obtain a union of this fracture, it is my opinion that the fragments must first be accurately coapted. I am far from being ready to admit that fragments of the neck of the femur can be accurately coapted when judged only by the x-rays, irrespective of the number of angles from which these are taken. After the fracture of the neck of the femur has been accurately coapted or before, if the operator will take a scoop of bone from proximal and distal fragments, trying to keep as near the center as possible in order to determine the depth of the necrosis, he will find anywhere from three- to five-eighths of an inch of necrotic bone. That bone, owing to the destruction of its circulation, has undergone an aseptic necrosis. I have watched enough failures in the early ambulatory treatment of these cases following approximation to know that it will remain an unsolved fracture until the surgeon realizes that no new bone growth will occur until the dead bone has been revitalized and the vessels have penetrated through it. When that is done, then you get the bone growth which will close that fracture firmly. But, quite obviously, that can't be done in six weeks, or eight weeks, or 10 weeks. A much longer time is required.

Now we come to the fact that this bone does not grow any periosteal callus, owing to the absence of any cambium layer upon the neck of the femur. That cambium layer is distinctly left out by nature because the capsule of the hip is a distinct capsular ligament, and the tissues know that they do not want any growth of bone beneath that capsule that will limit the function and action of the hip. That is the reason there is no cambium layer. That is the reason that you are forced to wait until the aseptic necrotic areas have been absorbed so that the bone can grow and remain inside the cortex.

If you had a wide growth of periosteal bone in this area, then you could hurry this procedure. As it is, it just cannot be done. Of course, you say that you can recognize these lesions, and recognize them accurately with the x-ray. Four months ago, I think I saw the *reductio ad absurdum* of this. A man who can operate—and don't have any doubt about his being an operative surgeon of skill and ability; he could operate on me without a thought, and I want you to understand that I am a very timid old man—for some unknown reason, in spite of all the types of hip arthroplasty and every other type of bone work, preferred to put in one of these pegs blind. So he put it in, and finally the x-ray verdict was that it was perfect; nice and firm and strong. The next day, however, it was found to be posterior to the neck. This is no idle jest; it can be corroborated if you wish to know the details. Neither the

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x-ray man nor the surgeon was an amateur by any manner of means.

I am going to deal a little more with what I think is the necessity of making an open operation. Henry Milch read a paper in 1936 in relation to a monkey bone. He apparently couldn't get the femur of a child, so he took a monkey's femur and moved the head around in different spots. (You can find this in *Bone & Joint Surgery*, either January or March, 1936.) I want to say that if anybody tried to confuse Milch about that monkey bone, he was seriously disappointed. It just couldn't be done, and things have not changed.

I have had a dislocation of the hip joint as to which it couldn't be determined where the head of the bone was until they saw the head through the sciatic notch. I have had fractured necks of the femur with fragments dislocated that could not be located by the x-ray. Consequently, I think it is essential to make an open operation to approximate the fragments accurately.

The next thing is to wait a long while. I doubt if I shall ever let one of these fractured necks of the femur that does not show a firm and definite growth of bone touch his foot to the ground before six months, irrespective of the accuracy of the approximation. If they are very old, it may be longer. That is No. 1.

No. 2: It is an extremely difficult thing to approximate these fragments in a certain number of cases with the joint open. Just what the percentage of such cases is, I am unable to state. I don't believe it is greater than one in eight. About once in eight times you pry and push and pull before you have the approximation accurate.

The next thing is the accuracy with which you put in a flange or a Smith-Petersen nail, screw, or whatever you wish. Incidentally, I put screws in the neck of the femur blind as early as 1913 but some of my results were good.

I will say one thing more. When you have an oblique fracture of the neck of the femur which it is extremely difficult to diagnose with the x-ray, it is also extremely difficult to get a pin, a Kirschner wire, or any type of foreign body to mesh properly with the proximal fragment.

CHAIRMAN SLOBE: We will now hear from an exponent of a different method, in other words, the method in which the operative approach is confined to the lateral aspect of the shaft of the femur without exposure of the joint. This method was recently discussed by DR. WELLMERLING, and reported in INDUSTRIAL MEDICINE about two months ago.

DR. WELLMERLING: With all deference to DR. CUBBINS, I think he is right in regard to this periosteal covering over the neck, but I do feel that, previous to this, we missed the main point in the matter of structural architecture of the neck of the femur. If we study that, I believe that in approximating the structures which are the supporting structures of the neck of the femur, our results are much better. That is, in studying the neck of the femur, we find that the medial and anterior cortex, which contains most of the trabeculae which converge from the head down into the shaft, pass over to the anterior and medial border. These are the weight-bearing structures, and if they are approximated and splinted, I feel, and our experience in a few cases has shown us, that we get a firmer approximation and union by the use of splinting with the Smith-Petersen nail. When this nail is inserted it cannot be put in just at random through the neck of the femur. It must splint this medial cortex and anterior cortex which are the supporting structure, and by that I mean it must closely approximate this structure because if it is not approximated it will naturally seek lines which will support it and will move laterally and into deformity.

You will say, then, "Is it a difficult matter to insert this so it will approximate?" The first step, of course, would be the reduction, and we depend upon x-rays, antero-posterior and lateral. In studying the x-rays, we again study the anatomy and the architecture. We know that in the antero-posterior view we have an angle of 17° from the acetabulum of the shaft, and in the lateral view a posterior divergence of the neck which is about 9° to 20° —which DR. MAGNUSON calls the angles of declination.

These angles have to be taken into consideration in inserting the pin in order to place it correctly. So we stress the point that one must know the architecture and the anatomical angles that go to make up the neck of the femur. The nail must be inserted in relation to these angles.

Then, too, this Smith-Petersen nail, we believe, should not be driven in. It should fit snug enough so that the shaft can move onto it the necessary length which we feel is enough to fix the neck into the head, so that we get an approximation sufficient to hold it. In that respect, the nail is more or less of a balancing proposition; it balances the head on the shaft. Again I say that this nail must approximate the medial and anterior cortex of the neck of the femur, or the upper parts of the shaft which are the supporting structures.

The nail is not inserted blindly. We make a definite incision, in a definite location, lateral and posterior, in order to get it inserted at the proper angle so that it is in relation to this angle of declination which is posterior to the horizontal level. The nail is inserted along the guide pin, which is checked with x-rays and, as I say, it is not driven in through the cortex blindly. An incision is made in the lateral cortex of the shaft, of the proper size so that the nail fits in, not too firmly and not too loosely. This incision is made with a hand chuck on a reamer, which is not an easy matter. We do it that way in order not to get any thermal necrosis of the bone.

The reduction previous to insertion is quite important, especially the matter of obtaining this proper angle of declination. Where so many failures do come about is in reducing the anterior position of the neck at the fracture site. If that is not reduced and you do not get the proper angle of declination, you are bound to have failures and a displacement of the guide pin and the nail. The neck at that portion, as you know, is not as large as the shaft. We must approximate this medial and anterior border in order to get the stabilization of the nail, otherwise it will move laterally and allow a displacement of the fragments.

On the matters of enlarged incision and necrosis, even if you do open up widely and remove some of the necrotic tissue that is found, this hasn't given any better results that I can see than some where we reduce properly. I think that the results we obtain are brought about by a proper reduction in the antero-posterior, and especially in the lateral, and getting this proper angle. The amount of incision we make is, of course, minimized in that way and the position of the nail in that respect is not a difficult matter. We have used this in a certain number of cases and are still open to conviction. There may be some better method still coming.

CHAIRMAN SLOBE: DR. CUBBINS, have you anything to add?

DR. CUBBINS: Yes, I would like to say, right now, that I think this architecture, this angle of declination, is lovely, but it is without value. The thing you have to battle in these cases is to obtain an accurate approximation. The doctor speaks of the medial and anterior border. In the pathology that I laid down, your anterior border isn't worth any more than any other part.

When you speak about an oblique fracture and holding it so that a screw can be driven through, you must understand the difficulty of driving a plate, a screw or a Smith-Petersen nail and making it contact an oblique surface that is not fixed firmly to another oblique surface. This you can easily experiment on by trying to drive a screw through two boards obliquely without them being fixed firmly together. These obliquities of the femur are very common. The ordinary obliquity has no significance, but the markedly oblique fracture of the neck of the femur is the serious hurdle that cannot be overcome by blind pegging.

Now, let's go to something else you are dealing with. This isn't altogether an approximation. You are dealing here with a blood supply that is cut off from the head of the bone.

There was a woman who walked into my office yesterday three years after an open operation for fractured neck of the femur. One year previously I had seen her walking

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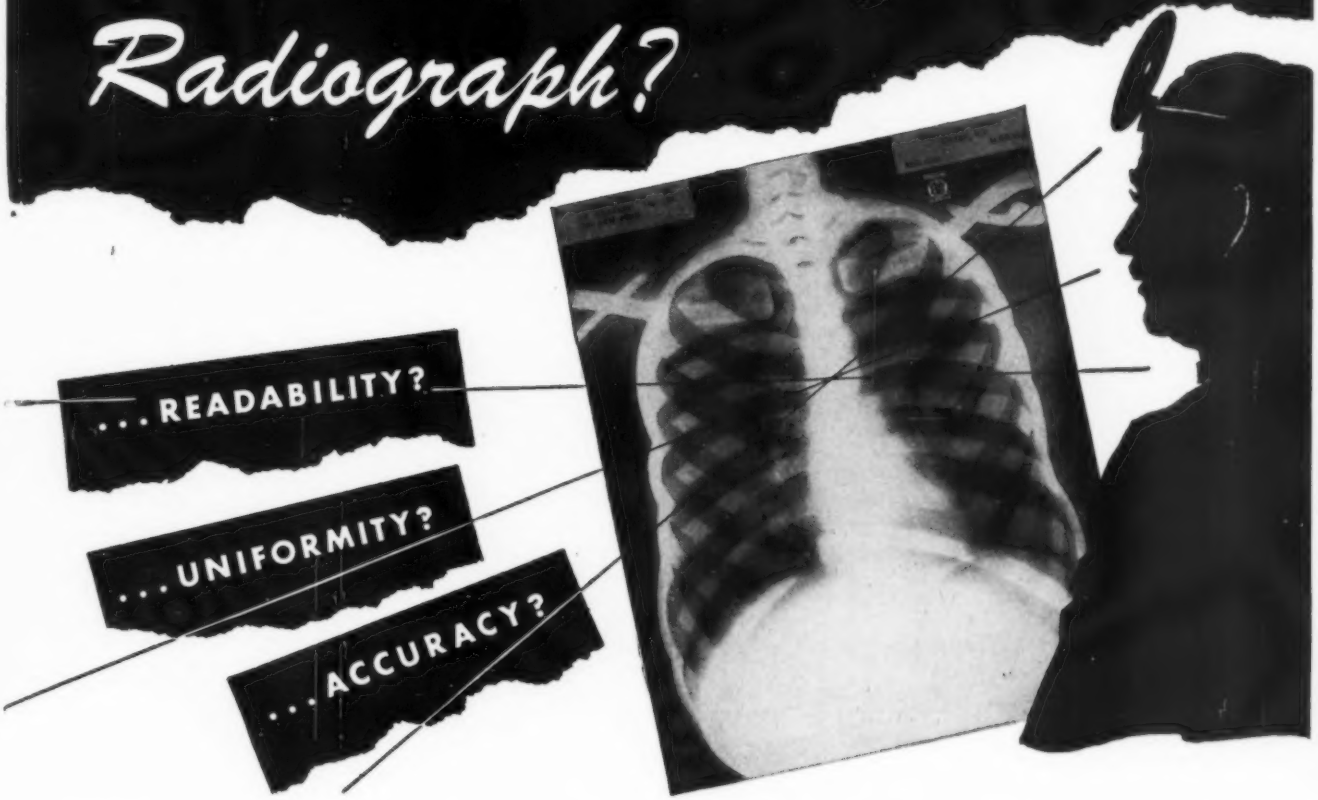

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freely and easily. Yesterday she walked with a marked limp. In other words, the femoral head lived 24 months after which period it was resorbed and replaced with a wild growth of bone.

From this type of case we are forced to admit that the fractured necks of the femur are far from being a solved problem.

CHAIRMAN SLOBE: DR. WELLMERLING, you have another chance, if you like.

DR. WELLMERLING: No, I have nothing more to say.

CHAIRMAN SLOBE: I might interpolate a word or two. The so-called blind procedure, of course, was usually blind because the operator didn't check with both A.P. and lateral x-rays. But referring especially to the use of the lateral view of the x-ray, obviously the insertion of a nail and allowing the patient to go downstairs without checking it with a lateral x-ray is an absolutely inadequate way of showing where the nail is.

DR. CUBBINS: It was checked and confirmed if you are talking about the one I reported.

CHAIRMAN SLOBE: No, I am just talking in general, about the use the term implies. That is many times due to the fact that the operator does not check by x-rays. Without the lateral x-ray the nail may be left anterior or posterior. DR. CUBBINS said the end result of these cases takes a long, long time to be sure. But there are things to be said on both sides of the subject, as presented by DR. CUBBINS and DR. WELLMERLING. DR. CUBBINS' method of exposing the fracture site under the naked eye when you reduce it is of some advantage. However, it is a procedure of considerable operative extent and is not amenable to use by a large number of surgeons. The other method, if it is carefully checked by x-ray, utilizes a smaller incision. If the reduction is made accurately, I think it would be much more universally applicable than a more extensive operating procedure.

I know of surgeons who are using the five-inch nail and are having patients bear weight on it in from three to five months. The healing goes on to solid union and holds position, because of the valgus position of the neck of the femur, with the neck riding under the head, and with the constant impacting force of the strong muscles from the pelvis to the femur keeping it constantly impacted, not losing position, and bearing weight in a few months time. But, of course, this is rather new, and one does not know as yet just how it is going to work out; but it gives indications that it is the best technique thus far advanced.

DR. DIEHR: If I may say something relative to DR. CUBBINS' statement where a surgeon whom he knew to be of unquestionable ability placed a peg into the neck of the femur blindly and the final x-ray verdict was that it was perfect and the next day, however, it was found to be posterior completely, I feel that this is the fault of the x-ray man. I don't think we can be too careful about precision x-ray work. It is almost inexcusable for men to report an x-ray with a pin directly in the center in both the antero-posterior and lateral views and the next day to make a report that the pin is posterior to the bone. As DR. CUBBINS said, this was no cub x-ray man. It is not the radiologist, it is the technician who takes the x-ray pictures. I have seen x-rays where the nail was completely out of the bone, only to find that by precision x-rays this was an untrue picture, a distortion. It is essential that the rays are directed accurately over the part to be x-rayed, especially in determining position of pegs or nails in the neck of the femur, and unless these rays are directed accurately over the neck of the femur, one will get distortion. The same thing can occur in the process of pinning. If you don't watch the technician and see that the rays go directly through the center of the bone, where the pin is placed, you won't know where you are. That is the fault of the technician, not the fault of the radiologist.

CHAIRMAN SLOBE: The next question is directed to COLONEL LEWIN. It is a combination, really, of two questions. What about the closed plaster cast method, either padded or unpadded, for the treatment of compound fractures; and should primary closure be used whenever possible in compound fractures, or should the wound be left wide open, as is done in military surgery?

COL. LEWIN: Whether a complete cast is advisable in the treatment of a compound fracture? Well, if a cast is used, I believe it should be split immediately. The second point, whether a wound should be closed. . . .

CHAIRMAN SLOBE: The question asks whether a window should be put in?

COL. LEWIN: Don't make a window. If you make a window, you will have window edema, no matter how large or small the window is. So I would say no window should be made. If you have to make a window for any reason, you'd better make it very accurately and replace it very accurately and compress it snugly so that you do not have window edema or you will have an outline where the edges of the window were that will cause trouble.

QUESTION: Can you tell us what you mean, what it is likely to precipitate?

COL. LEWIN: Edema. You have interference with circulation; a local thrombophlebitis, certainly the superficial type, and, before you know it, the deep ones. There you have superimposed upon your bone lesion a vascular lesion and pretty soon a nerve lesion, too. Opening the window and looking at it, even if you have a mask on and the patient has a mask, and everyone else, somehow or other you are running a risk. Then these quick peeks that you take! You know you say, "Just open and I will take a quick peek." You take your handkerchief out and say, "Let me look—all right."

CHAIRMAN SLOBE: The next point is about the primary closure of compound fractiures. You know in military surgery it has been an established rule in the field to leave all of them wide open because of the type of contamination, time interval, and so forth. Now that is causing a lot of doctors in this country to be imbued with the idea that compound fractures should not be closed primarily. I know it has been the practice of many surgeons to close the vast majority of them. What do you think about that? Assuming that the case is not too old—received in four or five hours.

COL. LEWIN: I think when you add up the statistics, add up the percentage or total, you will find that it is very risky to close them even within the golden period. There is no doubt that many have gotten away with it. That does not prove that you are doing the best for the greatest number. And we are seeing cases that have been treated, in the American hospitals and in British hospitals —and some who were treated by the British in various parts of the world—where some have gotten away with plating and complete closing. That does not prove that it is the smart thing to do in all of them.

With the use of sulphanilamide given by various routes, and penicillin, and the booster dose of tetanus toxoid, many of these have been very successful. They are beautiful when they are successful; but when they are not, I want to tell you it is a real tragedy.

CHAIRMAN SLOBE: DR. CUBBINS, what do you do at the County Hospital on those now?

DR. CUBBINS: The treatment of compound fractures in our wards remains the same as it has been since the experimental work that was conducted by Dr. John T. Reynolds and Chester Ziess. At that time we found that soap and water cleansing of the outside area and of the wound followed by cleansing with normal salt solution, then followed by an accurate debridement was the best method of preparing a compound wound. At the present time I am convinced that a certain amount of sulphanilamide should be dusted into all of these wounds.

I am still of the opinion that the skin should be approximated in such a manner that the stitches are not greater than three-quarters to one inch and that they should not be tied so tight as to cause a necrosis of the encircled tissues. The swelling that takes place later will approximate the edges of this wound in an accurate manner.

This method of closure permits the extravasation of the excess fluid that is brought by the body to the injured area. This fluid is brought in large amounts in order to bring warmth and food to the injured tissues and to wash out any foreign bodies that may remain that have not been observed by the surgeon. The wound is then

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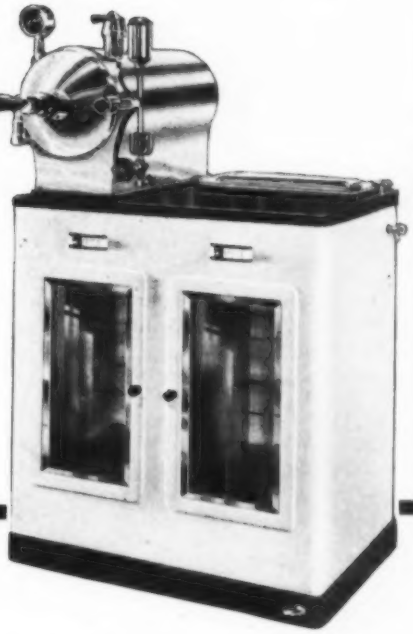

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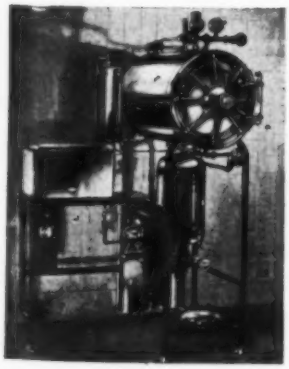

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dressed voluminously in order to take up this extravasated fluid. If these dressings are saturated at the end of 24 to 36 hours, they are changed and dry dressings reapplied without washing with any type of material.

This brings up the question of the very accurate and meticulous suture of wounds of the hands in opposition to the suture of compound fractures which are the most common in both bones of the leg. It is not meant that compound fractures are more common in both bones of the leg than those compounds occurring in the hands and fingers. It is simply meant that this is a very different area with different type of nutrition and a different reaction to pressure.

Where a hand wound may be closed without the expectation of vast quantities of fluid being extravasated, a leg wound cannot be treated along the same basis, because the fluid extravasated in fractures of both bones of the leg is so enormous that if the skin is closed with a meticulous exactness that prevents the escape of this fluid, the pressure is so great that the tissues have difficulty in surviving and it is extremely common to find the entire edge of the wound necrotic where the accurate suturing has been made.

This loose approximation of the skin serves to permit drainage without the presence of a foreign body adjacent to living tissues. Because wherever a foreign body is present adjacent to living tissues, the death of those tissues is certain to follow. That means that some more dead tissue and material must be absorbed or discharged.

There has been a vast amount of literature lately in relation to wounds being infected at the time of dressing. Many and various admonitions have been made to avoid infecting wounds at that time. It is my firm conviction that the great majority of wounds are infected at the time of the operation or treatment of a compound fracture and that they are seldom infected later by dressings unless there is washing and unnecessary handling of those tissues at the time of dressing.

The careful use of sulphanilamide, the use of large quantities of anti-streptococcic and gas antitoxin, is indicated where these wounds are terribly soiled and the tissues of the extremity so injured that the resistance is very low.

At the present time we have another great aid, and that is the use of penicillin in any of these cases where there is grave doubt. If this latter drug is used correctly following the careful preliminaries, it is our opinion that compound wounds, whether they be elective or accidental, can be kept clean in a very, very high percentage of cases.

CHAIRMAN SLOBE: What about the unpadded plaster cast, DR. LEWIN?

COL. LEWIN: The unpadded cast? I think there is a place for the unpadded plaster molded splint for the arm and leg. Now, although I had two years in the last war and have had more than two years in this war, I have not used unpadded plaster casts. I don't know why. It may be that Ridlon, Porter, Ryerson and CUBBINS just ingrained into me the idea of putting on a cast properly, and the various constituents of a cast. I still have that as my basis, and I haven't seen any reason why I should change from the properly padded, properly applied cast to the non-padded cast, although I believe that there may be a place for it. For those who like it, those who have learned to use it, more power to them.

CHAIRMAN SLOBE: Here is a question for DR. DIEHR about our old friend, Colles' fracture. We all know that in extensively comminuted cases of Colles' fracture you may get a nice reduction followed by a recurrence of deformity. How can one best prevent recurrence of deformity in the comminuted Colles' fracture?

DR. DIEHR: I assume you mean you had a perfect reduction before?

CHAIRMAN SLOBE: Yes, get a good reduction and it recurs.

DR. DIEHR: I think there are two schools of thought on the treatment of Colles' fractures: those who use the method of fixation by plaster cast and those who use the method of fixation by skeletal and external skeletal fixation. Where the cast method of fixation is used, I think the cast should come well above the elbow. I like the method that Klinefelter always used, with the hand in abduction or ulnar deviation. In other words, as he called it, the pistol position. In badly comminuted Colles' fractures I am now using pins mostly. I use skeletal fixation consisting of a unit that involves two pins which are placed in the lower third of the radius and a pin through either the first or the second metacarpal bone, and get my reduction. The unit that is placed in the lower third of the radius consists of two pins that are inserted at an angle of approximately 70° into the medial surface of the radius. The first pin, or the distal pin, is placed about two finger breadths above the fracture line on the medial surface of the bone in a superior and lateral direction. The second pin, or the superior pin, takes its place about 2½ in. above this point, in a distal and lateral direction. Both pins project through the opposite cortex of the bone. The size of the pin is about 3/32 in. Pin clamps are then placed over these pins with a rod connected to these two pin clamps in order to complete the unit. A small Steinman pin or a large Kirschner wire is inserted through the junction of the middle and distal third of the first or second metacarpal bone. The pins project beyond the skin level on both the dorsal and the palmar surfaces of the metacarpal bone. Pin clamps are then placed on the pins and a rod bent in the form of a U is placed into the openings of the pin clamps and a double fixation rod clamp is attached to the U. This completes the distal unit. The fracture is then reduced. In the process of reduction the hand is moved in all positions, dorsi and palmar flexion, abduction and adduction, in order to mold the joint surface.

After reduction the two fixation units are connected by a metal bar for completion of immobilization by external skeletal fixation. No plaster of Paris is used. My preference is the first metacarpal bone, as the hand can be held in the position of ulnar deviation better than by using the second metacarpal bone.

My experience with pin fixation has been much more satisfactory than by the cast method where immobilization of a forearm requires the cast to extend above the elbow, and I feel that it is essential to have immobilization up that high by the cast method, in order to prevent recurrence of deformity, and then, in many instances, deformity recurs. The advantages of skeletal fixation of badly fractured wrists or Colles' fractures are: (1) The frequency of recurrences of the deformity is practically eliminated; once the facture is reduced and if the pins are properly placed, the rod that maintains external skeletal fixation does not permit muscle pull to pull the fragments out of position. (2) A higher percentage of successful reductions is possible. (3) Circulation is preserved by immediate active use of the fingers and of the forearm at the elbow. (4) Preservation of muscle tone with much less muscular atrophy than by the cast method of immobilization. (5) There is less damage to the already injured soft tissues during reduction. (6) External heat can be applied, such as infra-red. Never use diathermy while the pins are in the bone. (7) The tissues can be massaged, and in compound fractures constant attention can be given to the soft tissues, where, by the cast method, it is necessary to cut windows in the cast in order to dress the wound.

It has been my experience that healing is more rapid with pin fixation. Where the circulation is preserved and the muscle tone is preserved, healing is bound to be faster. Restoration of function is much more rapid. The elbow is not immobilized and consequently we do not have stiff elbows or restriction in movements of the elbow to overcome after removal of pins.

CHAIRMAN SLOBE: We are getting in the pin zone now. Question: discuss the arguments for and against skeletal pinning and external fixation of fractures. The request was to have DR. WELLMERLING discuss the affirmative and DR. CUBBINS the negative. I don't know if these terms affirmative and negative are entirely applicable, but that is the way it is in the question. DR. WELLMERLING.

DR. WELLMERLING: Simple fractures.

CHAIRMAN SLOBE: Yes, apparently. The question asks for general arguments for and against skeletal pinning.

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DR. WELLMERLING: I use a lot of pinning. I don't think that is the only way to fix fractures or prepare them or handle them. There are other ways, but I use pinning because I seem to get satisfactory results. If there is any other way one can reduce his fractures and get satisfactory results, I don't see why he shouldn't use it.

The matter of pins, I think, has been badly misrepresented in the past because they were put in not, as we might say, according to Hoyle. There was no precision or thought as to where they should be, and if they are placed anywhere, one will get in trouble with them, of course. But with absolute adherence to strict rules as to where they are placed with the least danger, staying away from joints, and immobilizing the tissue around the pins, I think that a lot of the trouble that has been the experience of some men in the past, the drainage from around pins, is overcome. Most of us saw DR. HARRY MOCK'S work in the use of pins—some left in 19 months, and no drainage. And Dr. Slaughter's work with the pin fixation of jaws—as to which he says that, in the County Hospitals, they put no dressings around the pins, just wash them as they ordinarily wash their face—which with a lot of them isn't very much—and the resultant drainage is practically nil, and the matter of watching the motion of the tissues along the pins, to prevent it as much as possible, has avoided a lot of the trouble that was seen in the past.

I will admit that there are certain rules of placing pins, and certain types of cases, in connection with which one would have to have experience. The matter of placing pins is important. Surgeon General King and Dr. Phillip Wilson have said that they didn't feel they should be placed in just everyone's hands, because one can get in a lot of trouble with them.

On the immobilization of fracture by means of skeleton fixation, we get an absolute fixation. We saw this in DR. MOCK'S work, where he had those terrific compound comminuted fractures with great loss of bone, and later the bone graft, and he held the ends of the humerus in several cases in absolute fixation. He had fixation in those cases which he could not get by any other means.

CHAIRMAN SLOBE: DR. LEWIN, would you care to discuss that?

COL. LEWIN: In the three installations where I have been in this country in the Army, the pin fixation is not used. At Percy Jones General Hospital, at Gardiner General, and at Mayo General, we do not have the Roger-Anderson apparatus.

CHAIRMAN SLOBE: DR. DIEHR?

DR. DIEHR: I am an enthusiast on skeletal fixation, and pinning of fractures. My reason for this is because of the results I have obtained. I think that skeletal fixation and pinning of fractures is dangerous in the hands of those who do not know how to do it.

Precision pinning is the first and most important thing to learn. You must have certain places where you are going to place your pins and you must know where they should be placed in order to get the best results in reducing and maintaining position of fractures. I don't think that pins can be placed just in any position of a bone, just above a fracture and below a fracture. One must follow a very definite technique, and have a very definite pin site for each pin. One should consider the fixed point of anatomy in placing pins in order to get good reduction and in order to maintain the position of the bone after a good reduction is obtained. Another thing that must not be overlooked is not to be afraid to use x-rays. Take pictures frequently, and in both the antero-posterior and lateral positions, to be sure that the bone is remaining in position. We encounter the same difficulty with fixation of fractures with pins that those who use nothing but casts experience. For example, the bones sometimes become displaced, they do not always maintain their position after reduction. Bone absorption takes place at the end of fractured bones which has to be corrected by shortening the fixation apparatus and approximating the bone ends from time to time.

In skeletal fixation we overcome many deformities that cannot always be overcome in casts or in other extension apparatuses. The patients are more ambulatory. In fact, they are ambulatory right away. They have function of their extremities, that is, at the point above and below the fracture. For example, in a shoulder fracture, in the pinning of a fracture of the neck of the humerus, there is immediate function of the arm at the shoulder and the forearm is free to move at the elbow. Pins are placed through the head of the humerus and through the distal end of the humerus, and fixation is obtained by connecting these two units by a rod, which permits function at the shoulder and at the elbow. In leg and thigh fractures, the patients are out of bed the next day, or sometimes the same day of the operation.

Weight bearing is not permitted immediately, but light weight bearing is permitted in a short time if the position of the bones remains good. Until it is finally established in the pinning of fractures that the position is holding, no weight bearing should be permitted. Then only light weight bearing until there is adequate callus formation for removal of the pins. By this method deformities are overcome, straighter legs and straighter arms are the result of skeletal fixation. The bones are held in a definite position and there is end to end apposition of the bones and not overriding of the fragments. Fractures should be checked frequently with the x-ray and if the bone is displaced, correct the displacement. Fractures have to be treated today just as we have always had to treat them. The idea of merely setting a fracture and forgetting it is past. For many years too little stress had been placed on the treatment of fractures. I feel that it is just as important, or even more important, to watch the after care of a fracture than it is the after care of an abdominal operation. If one is not going to be sure that the bones are in good position and that there is no bone absorption, then you are not doing your patient justice and are not going to get results.

In many instances, as DR. CUBBINS said, aseptic bone necrosis is encountered in fractures of the neck of the femur. Unless bones are kept in apposition, you can't expect to get healing. Of course, in long bones we do not have the same thing to contend with as in fractures of the neck of the femur. We have the periosteum that throws off callus, but we must not forget to keep the bones in apposition. In many instances in pin fixation, it may be necessary to shorten up the external fixation in order to maintain proper apposition of the fragments and to overcome bone absorption. In skeletal fixation the muscle tone is preserved and circulation is maintained better than in casts. The joints above and below are not immobilized and the period of rehabilitation is much shorter.

DR. WELLMERLING spoke about pin seepage. You do get some pin crawl in many of these cases. I have never been smart enough to put in pins where I didn't get a pin crawl, but I've never had a case of osteomyelitis from it. But it is a local thing; insignificant; doesn't mean anything. You don't have to dress them often, don't fool with them and get them infected. Slaughter's method of keeping all dressing off the pins, I think, is an excellent one. If you could get by with it with all patients, you'd be better off, but the patients think they have to have a dressing.

One thing I want to emphasize. The psychological effect it has on the patient to get him out of bed after the operation is one of the biggest factors I have found. The poor fellow's earning power is cut off from a bad fracture, and he thinks, "I am going to be in bed for six months." Pin him; get him out of bed, and on crutches. He is a different man. The period of hospitalization is greatly shortened, which cuts down the expense for the patient. In compensation cases, they want to stay in the hospital because somebody else is paying the bill. But the individual who has to pay his own bill is glad to be out of the hospital.

In some instances even, in the pinning of fractures, you can let them go to work, some light work early. Some men go to work with a fractured arm, shoulder, surgical neck of the humerus and use that arm for just light work. I don't mean they do any hammering with it, but they have some use of that extremity because they have function of the elbow, function at the shoulder, and they certainly have their hand and wrist free.

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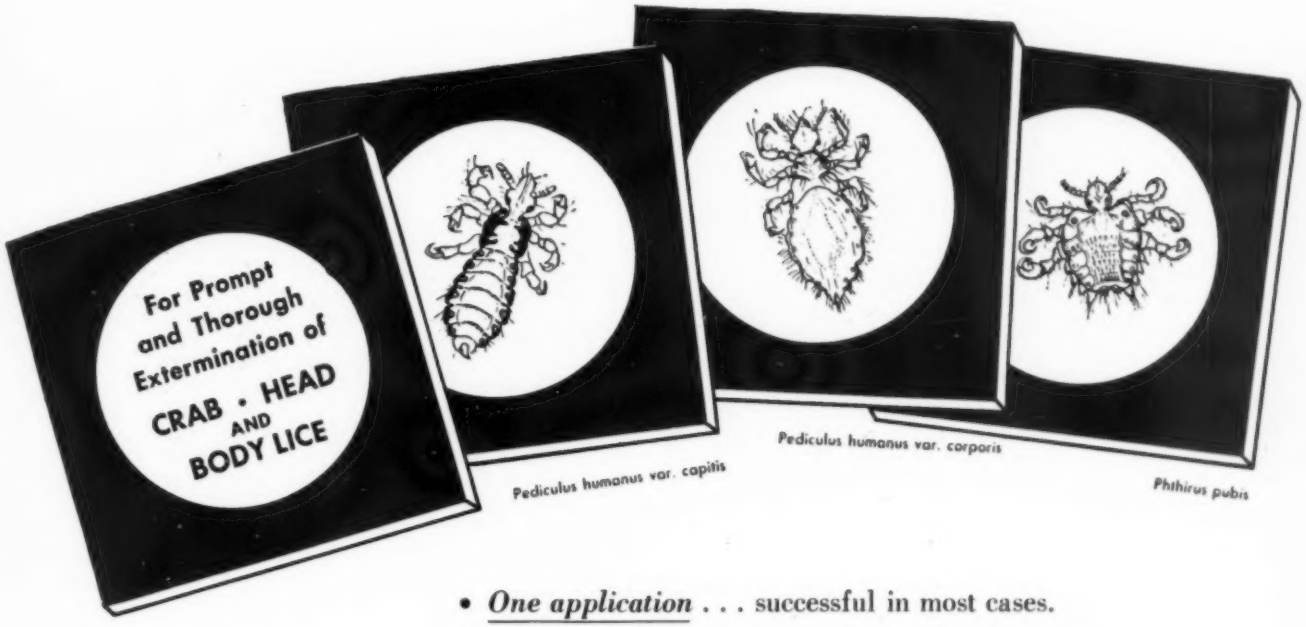
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In legs, you don't have to immobilize knee joints, nor ankle joints. Just immobilize the part that is fractured; if you are treating a fractured femur, there is motion immediately in the knee and you have motion at the hip joint; the patient is not confined to bed. One of the greatest hazards of being in bed, particularly with older individuals, is pneumonia. I think we eliminate a lot of pulmonary infection by getting patients out of bed early.

CHAIRMAN SLOBE: DR. CUBBINS, do you care to add anything to that?

DR. CUBBINS: As regards the use of pins, there is this to be said. We have used pins of all shapes, kinds and varieties. They were first started by Dr. Scuderi when he returned from Böhler's Clinic in Vienna in 1932. In 1936 another group of cases was carried out under the direction of Dr. John Gainor of Danville, Illinois and with Dr. Waters. These two series demonstrated certain things to us.

No. 1, there will always probably be a place in which pins can be used with advantage, but there are many disadvantages that have not been carefully considered. First, the difficulty of application has been minimized entirely too much. To apply these pins correctly is an extremely difficult operation and requires great surgical skill.

Second, it is very difficult to reduce fractures in both bones of the leg or both bones of the arm after the pins have been applied. This is owing to the fact that there is an interposition of muscle fascia and tendon between the ends of the fractured bones in addition to multiple fragments which cannot be worked out of the area without an open operation.

Even after these young men were experienced with the use of these pins, it required from one to two hours to get the reduction accurately made or, what we'd better say, made as accurately as possible.

For some reason, for which we can not give an adequate explanation, non-union following the use of pins is far more common than in any other method of treatment with which we are acquainted.

The next thing is the necrosis of the bone adjacent to the points where the pin has been forced through the cortex. Whether weight is or is not placed upon this limb, the bone adjacent to those pins dies. If it is a small amount and remains aseptic, it is absorbed and carried away. If, on the other hand, it is a large sequestrum, it cannot be carried away. If it is complicated with an infection which so commonly extends along these pins from the outside, an open operation is required to remove these sequestra.

You have seen some cases with relation to the long-continued support of slowly uniting fractures by the use of pins, which, for some unknown reason, have continued to remain apparently stable. But please believe me that that type of thing is very uncommon. As opposed to that method of treatment, many individuals in Chicago at the present time are placing large living grafts of bone to replace destroyed humeri or destroyed tibiae and then fixing those grafts at the proximal and distal end with screws, then continuing this support with plaster of Paris, and these graftings have been successful in such a manner that they merit great praise.

It is true that this could have been supported with pins from the outside, but, in my opinion, not with that degree of safety with which it can be done where the foreign body is completely covered. Here we must speak of tissue tolerance.

The subcutaneous tissue is the least tolerant of all tissues to foreign bodies owing to the fact that for many centuries or, for that matter, millions of years it has been throwing out teeth, claws, stones, arrowheads, thorns, and every other material that has punctured the skin and remained in the subcutaneous area.

If a foreign body lies deep below the fascia, it, as a rule, will remain there quiescent so long as no infection occurs either from without or hematogenously.

Some of your essayists have spoken of the fact that by the use of pins the individual is able to be ambulatory, or that he may use his hand and arm with the pins in place for a fracture in those areas, and that by that use he will avoid atrophy and shrinkage of the part. It is my experience that a limb will atrophy wherever a bone is fractured. This has been demonstrated to me several times by incomplete fractures of the patella, in which there has been no immobilization; the individual has used his limb, and yet atrophy has been present. I doubt if any bone can be fractured or any joint seriously injured without a subsequent atrophy irrespective of the use it receives or the physical therapy that it may be given.

In the treatment of these Colles' fractures with pins in the radius and in the first or second metacarpal bones, it seems to me that we are using an elephant gun for a mosquito. It will certainly not prevent atrophy or stiffness of the joint and you certainly have introduced a possibility of bone necrosis.

Now the question arises, who can and who cannot use this type of apparatus? It was the discussion of this apparatus that made me hesitate about attending this meeting. If men of the type of DR. DIEHR and DR. WELLMERLING, who are definitely able surgeons, were the only ones to use this type of treatment, that would be all right. But I do not believe that the extensive sales of these apparatuses to the man not experienced in surgery is justified. Look at the thousands of tin splints that have been sold around the country. In my very moderate experience I doubt if I have seen one solitary fracture which could be handled in a satisfactory manner by any tin splint on the market. That they will do in an emergency goes without saying. But that they are utterly and absolutely inferior to the use of plaster of Paris, which can be adjusted to fit any contour and any shape, I think that there can be no doubt.

As regards open surgery in opposition to pins, is it always satisfactory? Does the accurate coaptation of bones insure a union? As much as we would like to state that that is true, we are forced to make the following factual statements:

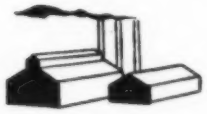
We have had non-union of bones following all types of intramedullary fixations with living bone; we have had non-union of bones in fractures that have been beautifully put together and held with long plates of the different types upon the market at this time. At one time we had three ununited femurs in Ward 34 that were refractured while the limb remained in traction. I mean by this that the plate that was applied accurately and correctly was fractured and that there had not been a particle of bone grown since the plate had been applied. While this is not as common an accident as it is in the humerus, it is still entirely too common to cause one to recommend the indiscriminate early plating of every bone.

In my opinion the greatest luxury that the public is enjoying at the present time is the demand that each and every fragment be accurately replaced. I am convinced that it is absolutely unnecessary to have more than a third or a fourth of these cortices in contact in order to have a good stable result if the longitudinal alignment is otherwise correct.

We must remember that, after this wound heals in the bone, you have millions of carpenters there adjusting and shaping it, and that even in elderly people they make a very decent job of it at a later period. The early operations on fractured femora or humeri in children are, in my opinion, to be condemned. Wolff's law will take care of any slight displacement and leave little if anything to be desired in the end.

You talk about 19 months' pins that remained firm. No living tissue that I have seen can remain firm in the presence of unyielding substance. It always has its necrosis and that necrosis is one of two types, either aseptic or septic. Granted that the septic is not as common as the aseptic. When it does come, as when some man has placed a pin near a knee, and he didn't know that the fracture went into the knee joint, and the sepsis strikes there, then we have the ankylosed knee. This is one of the two we were talking about. I don't know how he recovered from it! The knee is ankylosed at just that particular angle that makes it useless.

If you must put pins or screws in, cover them up. Foreign bodies in the subcutaneous tissues are not well tolerated. They are not well tolerated because for thou-

In the first-aid stations and medical departments of large  and small industrial plants, 'B·F·I' has become a "must"--for it is so convenient, handy and ready for immediate use in the treatment of cuts, abrasions, burns, chafing, scratches and other minor wounds and skin irritations. Dusted on liberally, 'B·F·I' brings almost immediate relief to tired, burning, weary feet, and is of proven value in the treatment of epidermophytosis (athlete's foot). It promotes healing without caking or forming hard crusts--an ideal antiseptic, dry, surgical dressing. 'B·F·I' Powder is supplied for "industrial use" in a ½ pound combination sprinkler-top and dispensing package. Also available in ¼ ounce and 1¼ ounce sprinkler-top packages.

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sands of years the subcutaneous tissue has been throwing out horns, teeth, claws, and stones. For that reason when you put a foreign body in, please try to put it so it is not adjacent to the subcutaneous tissue. That can be done. The individual can do his light work with it. He can get out with it. But irrespective of how firm you fix it, if the bone is fractured, he walks and he works, but his limb atrophies every time. You have a fracture around a knee joint, patella, on which the individual walks constantly; never immobilized at all. It atrophies exactly the same as if you fixed your pins in it as Roger Anderson said a few years ago, whether you put them parallel or put them together. Of all the asinine things! If you could prevent the atrophy by putting those pins in or putting your plate in, that is all right. You can't. Don't accuse me of anything wrong. Look at your thighs. Look at your legs. Irrespective of the type of treatment; irrespective of whether it has been an open operation with pins, with plates; or no open operation, just casts; or no casts; atrophy—always.

We have got to think. Think of the hundreds and hundreds of pieces of tin splints that are sold around this country today. Intelligent men who haven't brains enough to know that they can't fit a tin splint to a limb to save their souls; that they should have a plaster cast and they can fit it with or without pads. I would rather have casts padded a little bit because pressure necrosis is a serious thing.

We are obsessed with overdoing surgery. Somebody has one bad result, and then you all have to do it the same way to overcome that result. That is not logic. It is not brains. . . .

One more: Transverse fractures of the femur. In one period in 1940 we had three ununited fractures in the middle third of the femur, and then later we had three ununited fractures of the femur with fracture plates. If you think they weren't put together accurately and beautifully and perfectly, you would change your mind! That isn't the point. They were stabilized. They had these great long-grooved flanges in there inside them. They were right, but they didn't grow bone. Now, why? At the end of each and every fracture in the end of a femur or any other bone, for that matter, the death of that bone varies as the width and density of the bone. On each end there is a death of heavy bone a quarter inch. That bone is never absorbed; it is replaced by creeping substitution. When in applying a plate you remove all of the periosteum from that bone, particularly a femur, apparently you do something to the circulation that stops this creeping substitution. Think that over.

I am going to mention one more thing. With a long, oblique, spiral fracture of the femur, by all the law of the prophets, the same force that tears that bone longitudinally should kill those adjacent cells and should injure the blood supply, which causes the loss of life. Is that right? And yet I have an old fellow who fell down 27 feet. He is 70; he is fat; and he broke his right femur in five or six spots up at the top. We didn't know much about pins, so we didn't put any in. We simply put on a Buck extension and hung his leg low. The funny thing about him was he had two pin-point pupils. I never have known what he had. He grew bone like a house afire. He walked out at the end of 10 weeks, and yet there was the same possibility of the extent of your aseptic necrosis. I cannot explain it; and I am a little too old to prove it. Some of you bright fellows find that out, put it into the literature. The end bones have been proved repeatedly under transverse fracture. They have not proved or stated the extent of the depth of necrosis when you are dealing with a spiral or oblique fracture.

CHAIRMAN SLOBE: DR. CUBBINS has given us the voice of experience. We are always very glad to hear from him, and have him give us the benefit of his long experience. You have heard two divergent viewpoints about the use of pins. As I mentioned a while ago, surgeons are in the habit of using the methods which they find give them the best results in their own hands. We have had DR. CUBBINS and DR. DIEHR discuss this subject, both of them men of experience and large practice, showing decided disagreement. As a rule in cases of this kind the thing for us to remember is that there is very much to be learned from what both of them said.

To summarize, relative to multiple pinning and external fixation, one might say that it is a method of value to be included in the armamentarium of the surgeon; but that it must be used only when indicated and used correctly, and not used indiscriminately. I think most surgeons who use pins and who use other accepted methods, including open operations, run across instances where they are sorry that they used the pins; and I am equally sure they run across cases in which they are sorry that they had not used pins. In other words, they will find instances of both types. It is usually the way a person becomes acclimated to the equipment he is using and the methods he finds most valuable that determines what course he is going to pursue. But, in all fairness, one should be guided by results following the *correct* use of, and not by the *abuse* of, any method. The insertion of pins attached to external fixation rods gives us the unique advantage of furnishing a handle on each fragment, thus facilitating manipulative reduction. Here is a question addressed to DR. LEWIN, "What about the hanging cast method for treating fractures of the shaft of the humerus?"

COL. LEWIN: I think that it is a gift from heaven. That ought to be all that is necessary to get my point of view. It violates every principle that we learned in school, every principle that you have heard up to a few years ago at every meeting, and still I think it is one of the greatest things that has ever come out. It is used for many things besides fracture of the shaft of the humerus. It is a marvelous thing. There are a few things I would like to say about it. First, the angle should be a little bit less than a right angle. The cast should be light. And here is an important thing: The man who has a cast on must not sleep on a cot; he must have a bed with a back rest; he must never lie down, never until you are satisfied the fracture is healed; he must not lie down when he has his x-rays made. That is the reason many are not having 99 or 99½% success with it. Remember a few things about a hanging cast. It is a marvelous thing; it will do what seems to be the impossible. One of the best examples I had was at Michael Reese 10 or 12 years ago, soon after Caldwell came out with it and Hudson of Louisville and Laterte, in Detroit, were writing about it. This was a woman with everything wrong you could imagine. She was a walking pathological museum. She had a comminuted fracture just a little bit above the middle of the humerus. We put a hanging cast on her. If we had done anything else to her, I think we might have tipped the scales against her and she would have died.

Another thing about the hanging cast, when you have put it on, get the patient as soon as you can to begin using pendulum movements of the shoulder and then clockwise and counter-clockwise movements of the shoulder. To answer your question, I think the hanging cast is wonderful.

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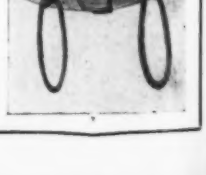


Healthy Industry

—The Industrial Medical Service of the Automatic Telephone & Electric Co. Ltd., London-Liverpool—

INDUSTRY implies service to the community and also profit, which *inter alia* yields taxes, enabling government to function. Within itself industry must be healthy, and the component parts of this are well understood, but of them all, the health of the worker is the most vitally important. An industrial health service embracing pre-employment medical examination, industrial medical supervision during employment and rehabilitation is now widely regarded as an asset which costs little and yields much. For the large units of industry it is indispensable. No one can imagine Stratford-on-Avon without a doctor, and the industrial unit with the same population poses a similar problem. Any scientific care of health demands the availability of proper data. In the belief, therefore, that the system and its application described in this book may be of value to others, I requested the author, DR. JACK TARSH, the Medical Adviser to the Company, to deal with them both in detail. The book describes a method which has been proved by experience and throws up data which make a valuable contribution to sound industrial management. Of sickness absence recording as an aspect of managerial control, the author says that it must prove its worth as an active economic factor in the actual running of the business. This is all important, and in the knowledge that it does so I commend the following to the reader's notice.

—T. A. EADES,
Managing Director, Automatic Telephone & Electric Co. Ltd., Strowger Works, Edge Lane, Liverpool 7.

Mens Sana in Corpore Sano

WE present the following analysis in the conviction that the "human factor" in production is as valuable as the most elaborate piece of machinery, and that the maintenance of a high standard of health amongst industrial workers and employees is one of the essential responsibilities of good and efficient management.

It is of utmost importance that the government has accepted responsibility for the maintenance of full employment which means that the waste and deterioration of human material which was the prominent feature of the inter-war years will be brought to an end and every available man-hour be utilised to the advantage of the nation and to increase the national output.

The tremendous task of reconstruction at home and abroad facing British industry will only be met if industry can be tuned to a high pitch of efficiency in every single unit and in the economic system as a whole.

Much has been written about the achievement of that efficiency; in brief it is contended that the most up-to-date plant must be placed under the control of the keenest management and given the support of the best technical services available in the form of adequately equipped laboratories and adequately trained specialist technical personnel. This must apply both to research on new developments and the control of current manufacture.

The object of this publication is to put the case for adequate services designed to maintain at full efficiency the most delicate and complex mechanisms known to technology—the human body and the human mind. No prudent executive will continue to run a machine which is in need of repair and is in consequence doing bad work and at the same time itself suffering irreparable harm. Nor will he use on one job a machine which is unsuited to it and unable to do it well, if the same machine can give satisfactory service on other work to which it is better suited. Maintenance services designed to protect the machine, to conserve its capacity to do precision work and to lengthen its useful life will be provided and the expert advice of the methods engineer, the expert in materials and the production specialist will be available to aid the making of decisions by management. Why then, should not the same beneficial results be obtained from the services of the technical specialist who has studied the working of the human machine—that is, from comprehensive industrial health services?

No doubt a good case can be made out for such services on humanitarian grounds, but that is not the purpose of this survey. This is not because of indifference to human consideration—far from it, but because it is wished to show that the provision of such a service is in reality a matter of good management, and not a charitable or paternalistic gratuity. The war has served to stress the importance of labour as a most essential factor of production, and to bring home to managements what a priceless asset an efficient, contented and healthy labour force can be.

It is therefore contended that an adequately equipped and staffed industrial health service appropriate to the size of the organisation is an integral part of the good management of any modern factory.

A balance sheet of costs and returns for such a service would be extremely difficult to compile in terms of £ s. d., and even if so compiled, would perforce have to omit from its accounts literally invaluable items like health, happiness, contentment and good human relationships. But then for how many purely technical departments can such a balance sheet be constructed? Can it be done for the despatch department, for instance, or the stores? The ultimate justification for departments such as these is the smooth working of the organisation as a whole, to which they contribute an intangible, but nevertheless indispensable part.

Prior to the war there were only some 25 full-time medical officers engaged in industrial health services, and these were connected chiefly with a few organisations of exceptionally large size engaged upon work of a physically trying or hazardous nature; Imperial Chemical Industries and the Royal Arsenal were two examples of concerns who were giving attention to the problem. War and its concomitant circumstances however, introduced many new factors and many new problems.

To mention but a few, there are the large increase in the number of women workers, lengthened hours of work including night work, the direction into industry of many who would otherwise not even have contemplated such employment, and the extraneous but closely associated problem of the much depleted ranks of the medical profession, from specialist to general practitioner, which has resulted from the demands of the services.

As in medicine so in industry—the disease must find the remedy; and in this case the extensive application of well informed, appropriate and, most important of all, efficiently applied industrial health services is the cure.

There are now some 150 doctors fully engaged and some 700 part-time engaged in this work, and further practical recognition of the need was given by Mr. Bevin's Order of 1940, although it is gratifying to record that the Ministry has in no single case been compelled to exert legal compulsion upon a firm to appoint a doctor.

Thus industrial medicine is not wholly a war-time innovation but the need for consistently maintained maximum production under difficulties and against obstacles has proved a forcing ground in which the seed earlier planted has rapidly attained lusty and well-rooted growth.

Because of this now-accepted need for an industrial health service it is felt that the constructive thought given to the subject and the extensive manner in which it has been applied and developed by the company whose work is to be described will be of value to those now engaged or about to embark upon a similar venture.

As it is felt that these may be of interest to managements generally, there follow the results obtained during the past year by an industrial health department established during the war in a group of factories in which, it might be noted in passing, neither exceptionally arduous work nor large quantities of dangerous materials are normally encountered.

It is hoped that by setting out in detail what has been already achieved and the manner in which it has been and is being done some slight contribution to the knowledge of others will be made and some assistance afforded to

those for the moment uncertain as to the systems and methods to be introduced or the manner in which they can best be applied. The hope which is entertained in this respect is based upon the practical experience which has been gained and the fact that it is now possible to summarise, classify and discuss the many results actually obtained over an extensive period of full-scale operation.

A Year's Working

THE need for and value of close attention to the health of employees in an industrial unit may best be assessed by considering the employees themselves and the place in which they work. For example, if time spent in eating meals be deducted and travelling time to and from employment be added, it will be realised that some two-thirds of a person's working life is spent at his or her work. In addition, this is the time in which bodily and mental stresses and fatigues are chiefly caused and sustained. Yet, without an industrial health service this is just the time and just the conditions in which persons would be left without attention. It can be argued that there is still left some time of the day in which they can visit an outside doctor; that is true, but the answers are forceful ones. Firstly, a little attention at the outset of the first symptoms usually prevents much serious trouble later. Secondly, a knowledge of the work done by the person and the circumstances, atmospherical surroundings and the like in which it is done are of immense value to the doctor in making his diagnosis and applying treatment. This is so with every type of occupation and refers to such elementary points as to whether the person is sitting or standing, has, for example, the stomach muscles under tension, or the eyes concentrating for long periods. To choose an example completely in contrast it may be that the person is engaged on repetition work of a type which makes little apparent demand upon the worker, but in reality imposes a strain by virtue of monotony invoking tedium and causing the condition now discussed at length in the textbooks on occupational maladies, under the title of "industrial fatigue."

To these must be added the stresses due to particular occupations and processes where the materials handled or the conditions sustained are themselves potentially hazardous to health. Stonemasons' or pitworkers' silicosis, gastric troubles due to noxious fumes, skin ailments caused by the handling of corrosive chemicals or radio-active materials and many other examples can be quoted, but for each occupational disorder which is known and readily traceable there are believed to be many which are not yet realised and which can only be discussed, traced to their source, and subsequently prevented, by skilled medical officers present at the point of cause—the person's workplace.

Whilst it is certainly true that a great deal of the ill-health existent in an industrial unit can be brought to light by continuous medical supervision of the factory environment, processes used and materials handled, much ill-health is only revealed when the employee absent through sickness—either physical or mental—returns to work.

It is essential therefore that the reasons advanced for such absence from work be brought collectively and individually to the attention of the industrial medical officer for his early assessment.

A need is therefore obvious: an exact and comprehensive recording system must be operated, which must cover all absence from work, no matter to what it might be due. Such a system is described at length in the later pages of this booklet. The purely medical side of the work will, however, first be dealt with, bearing in mind that a proportion of the cases discussed were first discovered through the absence record.

The following is an edited version of the report to the board of management of the company's Medical Adviser on the activities of his department for the past year. It is thought that it may be a guide to other industrial health services as to the manner in which managements should be made practically cognizant of the work done and the wide scope embraced by their health services. Indeed, such a report should be required for managerial action just as definitely as any other which it is standard practice for the productive or commercial departments to supply.

General Health Survey

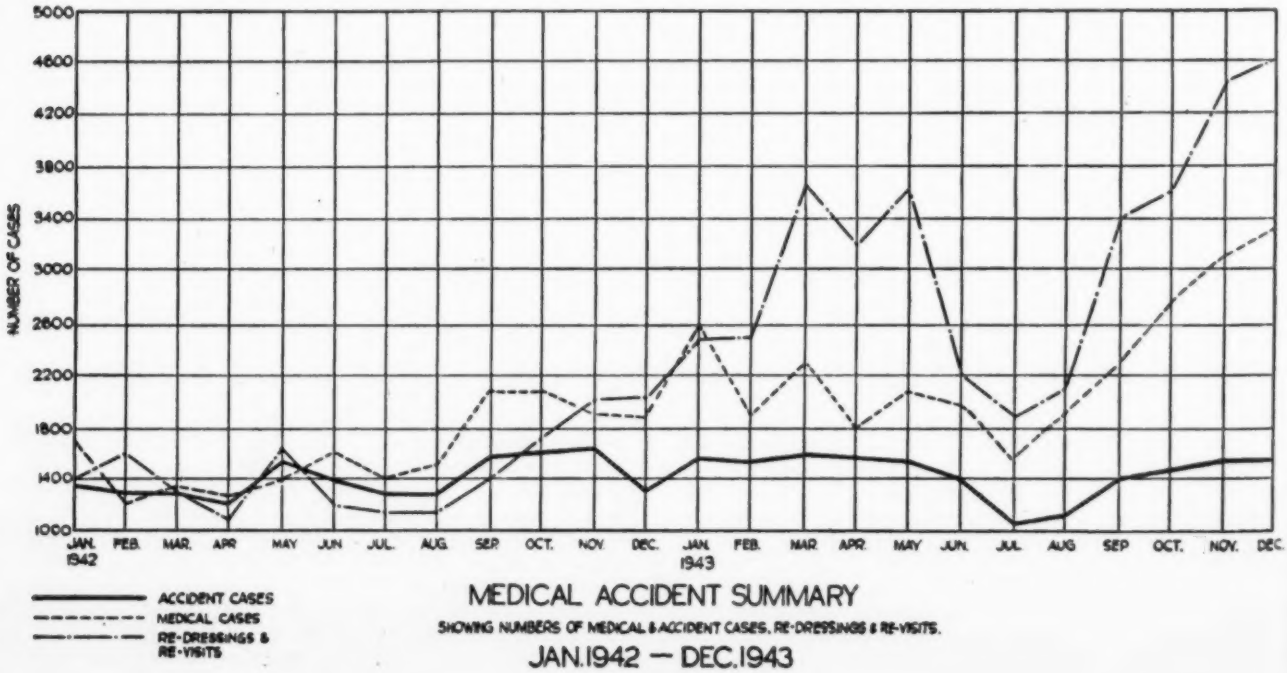
IN THE factories under review there was a decrease in serious illness during the year 1943.

Contributory factors to this satisfactory decrease were the mild winter of 1942-1943 and the following early spring; the comparative freedom from influenza till late in the year and the wise action of the management, which, while maintaining overtime and nightshift on the scale necessitated by war production, consistently made every effort to prevent working hours becoming excessive.

Absence amongst employees who were engaged alternately on day and night shifts was 50% higher than for those engaged on day shift only.

Minor accidents and ailments have, as might be expected, increased during the fourth year of war. A monthly average of several thousand cases received treatment in the First Aid Room.

It would appear that employees generally are becoming



MEDICAL ACCIDENT SUMMARY

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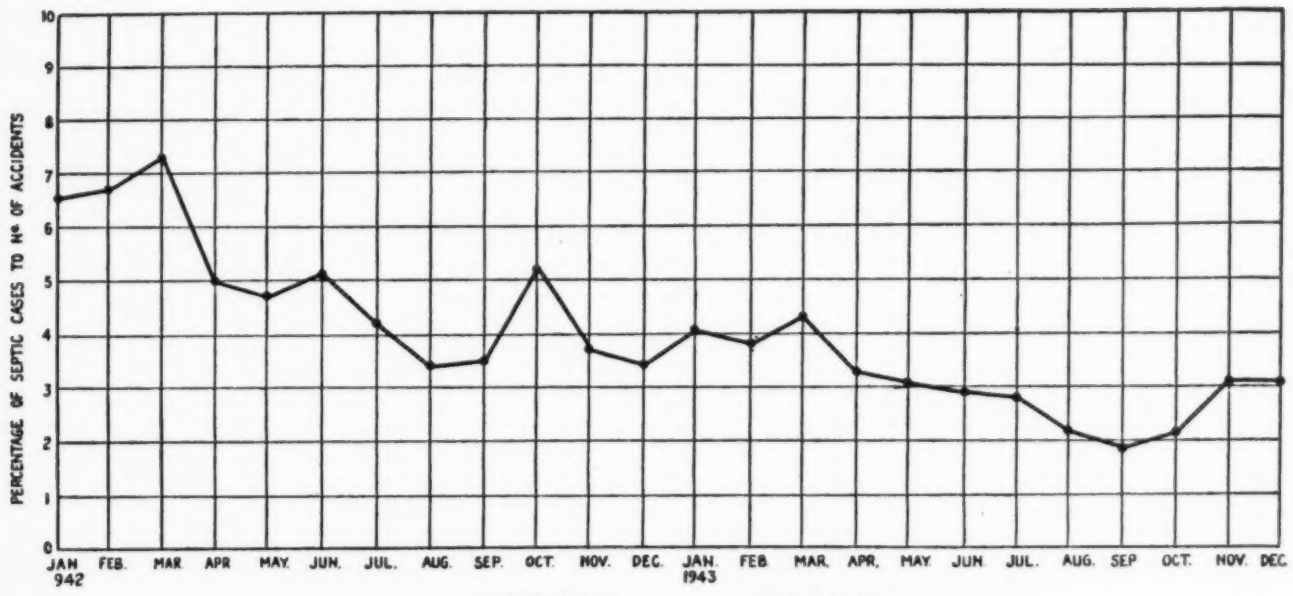


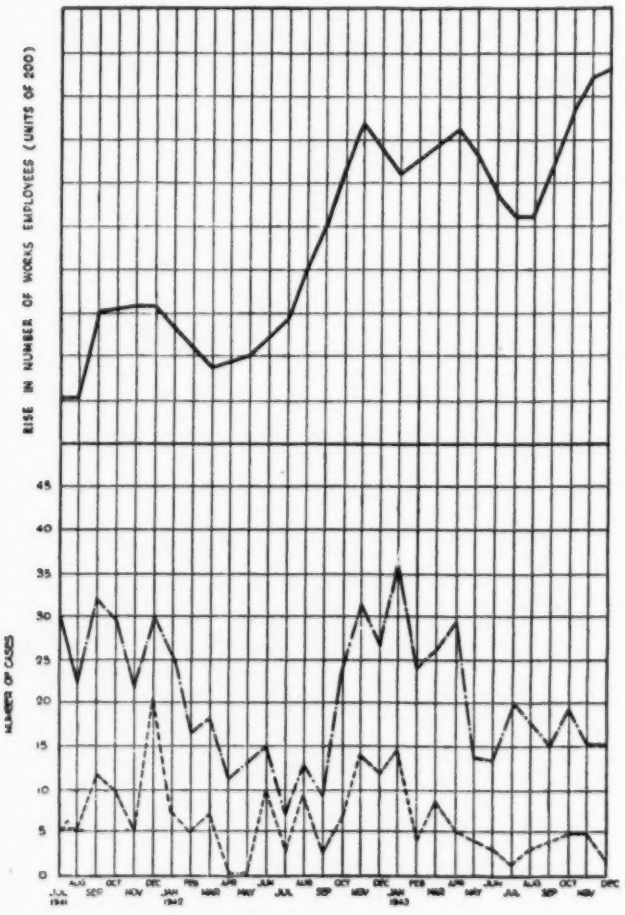
ACCIDENT SUMMARY

SHOWING RELATIONSHIP OF SEPTIC CASES TO TOTAL ACCIDENTS

JAN. 1942 — DEC. 1943

health conscious and are making more and more use of the First Aid Room facilities; early attention to their minor accidents and ailments has resulted in a marked reduction of sepsis and also of reportable accidents.

Taking the figure for the number of reportable accidents —those causing at least three days absence—as 100 for 1941, the relative figure for 1942 was 81, and for 1943 only 55.



REPORTABLE ACCIDENTS

JULY 1941 — DEC 1943

This gratifying fall is even more pronounced than these figures indicate, because the number of employees has increased. Between 1941 and 1943 the total number of employees has increased by 14%.

Furthermore, this sharp fall in the reportable accident rate is despite the large increase in the number of female employees.

Regular periodic supervision of hazardous processes has been carried out, and only a few employees engaged on them have exhibited symptoms of toxic ill-health.

Industrial fatigue, though difficult to diagnose, is on the increase, but every attempt has been made to combat and reduce its cumulative effect. To this end rehabilitation and vacations, both convalescent and preventive, have been advised on as wide a basis as reasonably possible, and the psychological factors so often the root cause have not been overlooked.

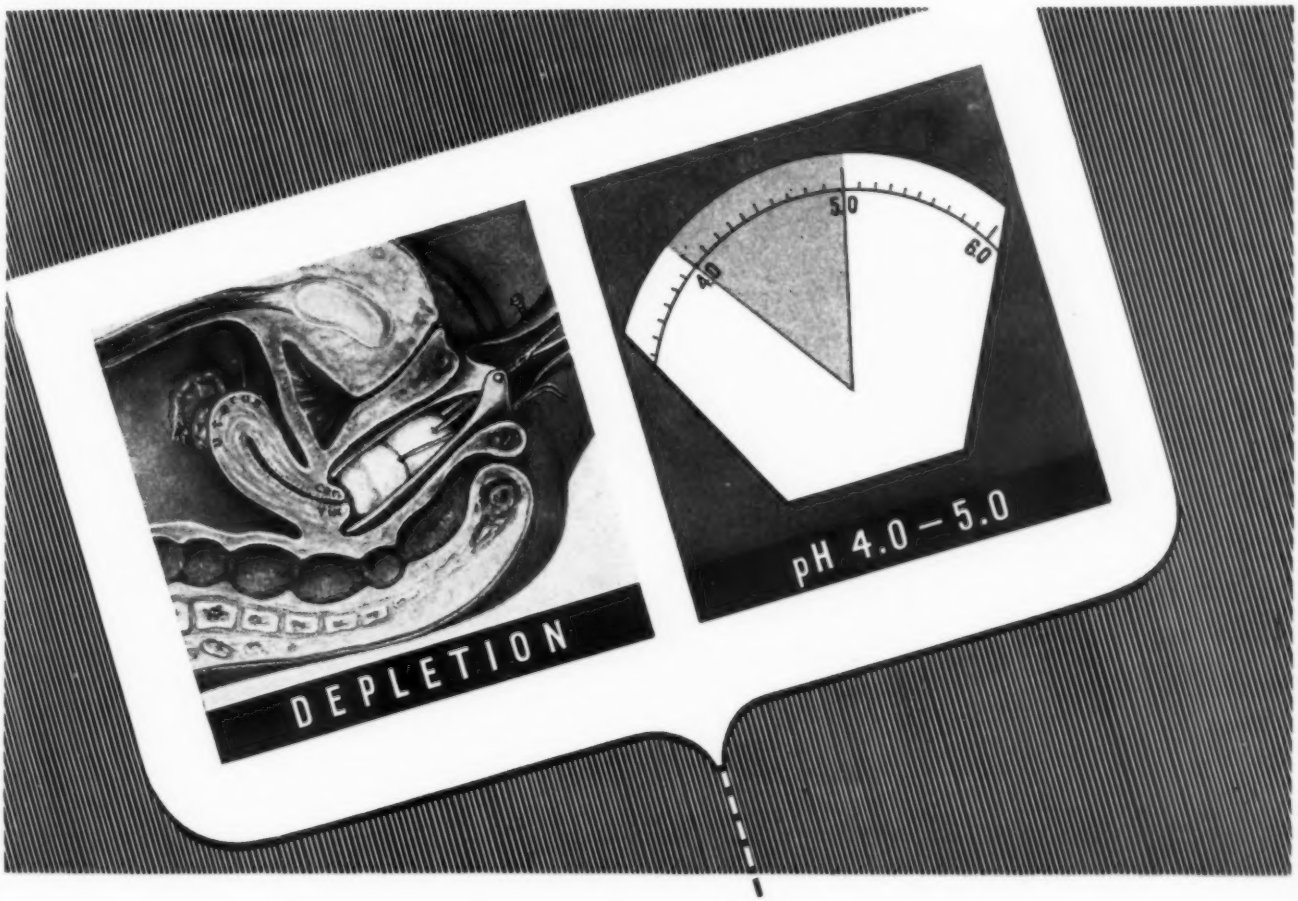
An attempt was made to reduce the frequence and severity of catarrhal conditions, especially the common cold. Mixed vaccines were given to 1,000 employees. A further year's trial was deemed advisable before the results achieved warranted publication.

The generally satisfactory health and accident position maintained throughout the year was disturbed in the months of November and December by a widespread influenza epidemic; its arrival was not unexpected. Although no specific remedies were available, measures to prevent its spread at the works were instituted at an early date. At no time during the epidemic did certified sickness absence from all causes exceed 10% of all employees. This relatively low rate compares favourably with the corresponding figures of the neighbouring industrial units.

To sum up, although comparative data is limited, it is submitted that the health of the employees has been well maintained, and that the knowledge and experience gained during this year of the industrial health service is of great value as an aid to the management, not only in planning the future general health policy, but also in assessing the level of production which will be obtainable from the labour force in years to come.

Pre-Employment Examinations

DURING the year under review, several thousands of pre-employment examinations were carried out. The physical condition and desire for work of many of the applicants directed into industry were of a lower standard than in pre-war days, therefore in engaging workers every endeavour was made to discover the best qualities in each and



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1. Kleine, H. L., J. Mo. State M. A. April, 1939

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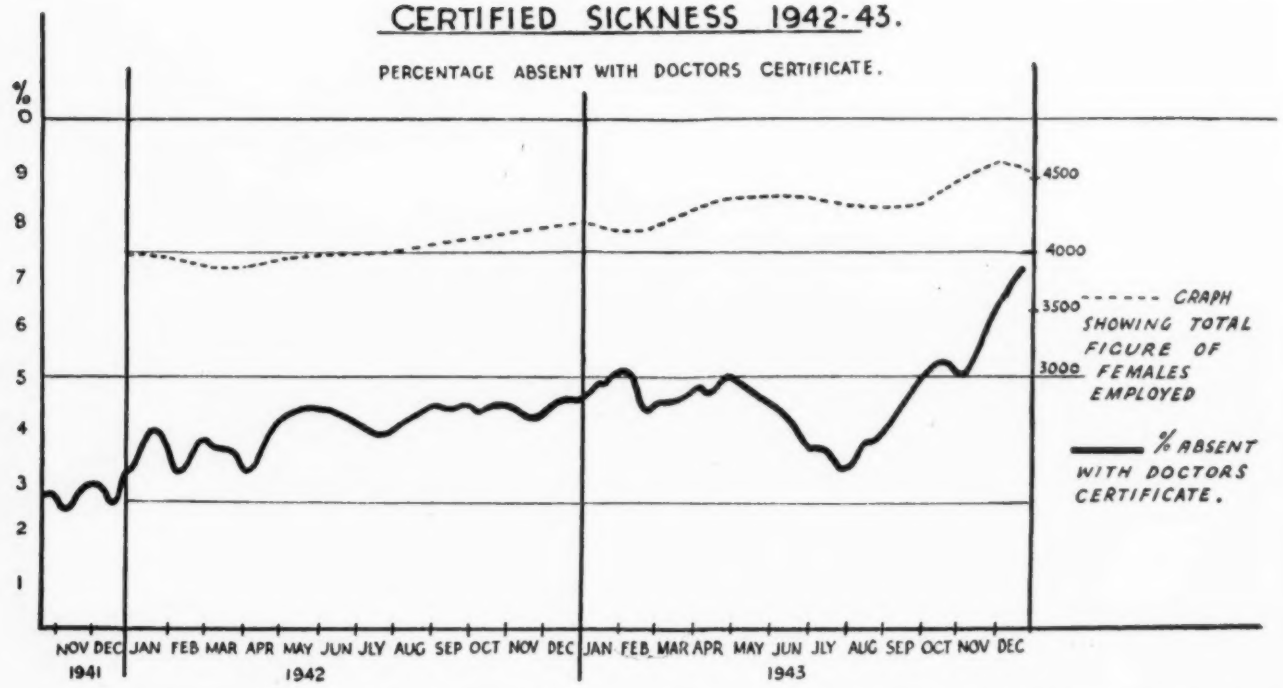


according to ability to place him or her in suitable employment, rather than to pursue a fault-finding examination which would reject, as has so often been done in the past. Nevertheless, 5% had to be rejected as completely unemployable.

After examination every applicant was referred back to the Labour Department with a report as to fitness for the proposed job and where unfit, with suggestions for alternative employment.

Whilst these pre-employment examinations take up a considerable portion of the medical officers' time, they have proved themselves to be invaluable, for they have prevented many employees being trained for jobs which would have been beyond their physical and mental capabilities, with consequent loss of health, time and money. Out of several thousands examined only 34 were later found to be unfit for their selected jobs and had to be released.

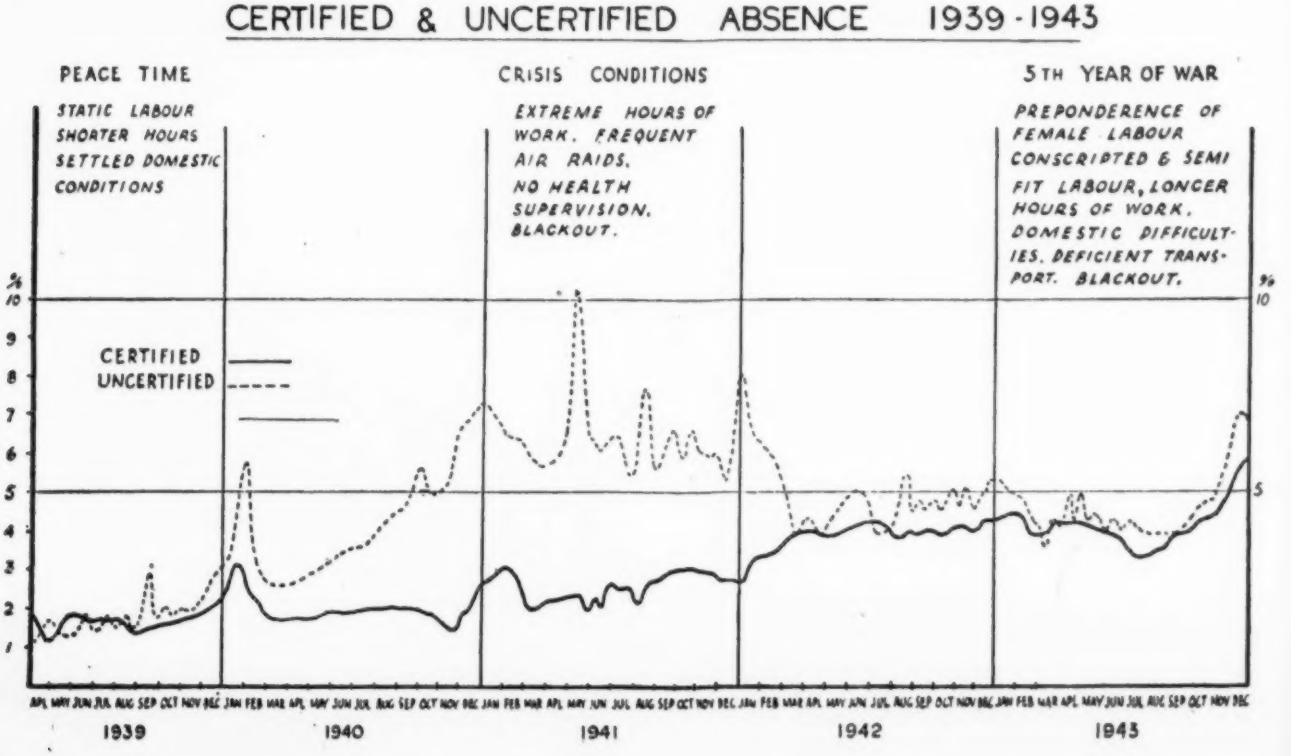
Furthermore, by initiating a health record for each new employee, the department has been able to assess any deterioration or improvement in the individual's health, and to follow up doubtful cases and serious disabilities by periodic examinations.

During the time these measures have been applied labour turnover has decreased from 23% to 21% despite the large increase of women workers, many of whom were married and had to be released on account of ensuing pregnancy. Had it not been for this factor, the labour turnover would have been much further reduced.

First Aid Room

SEVERAL thousands of cases were treated in the First Aid Room each month, the number being greatest in December.

These figures speak for themselves and clearly reveal the need for and value of prompt first aid treatment.



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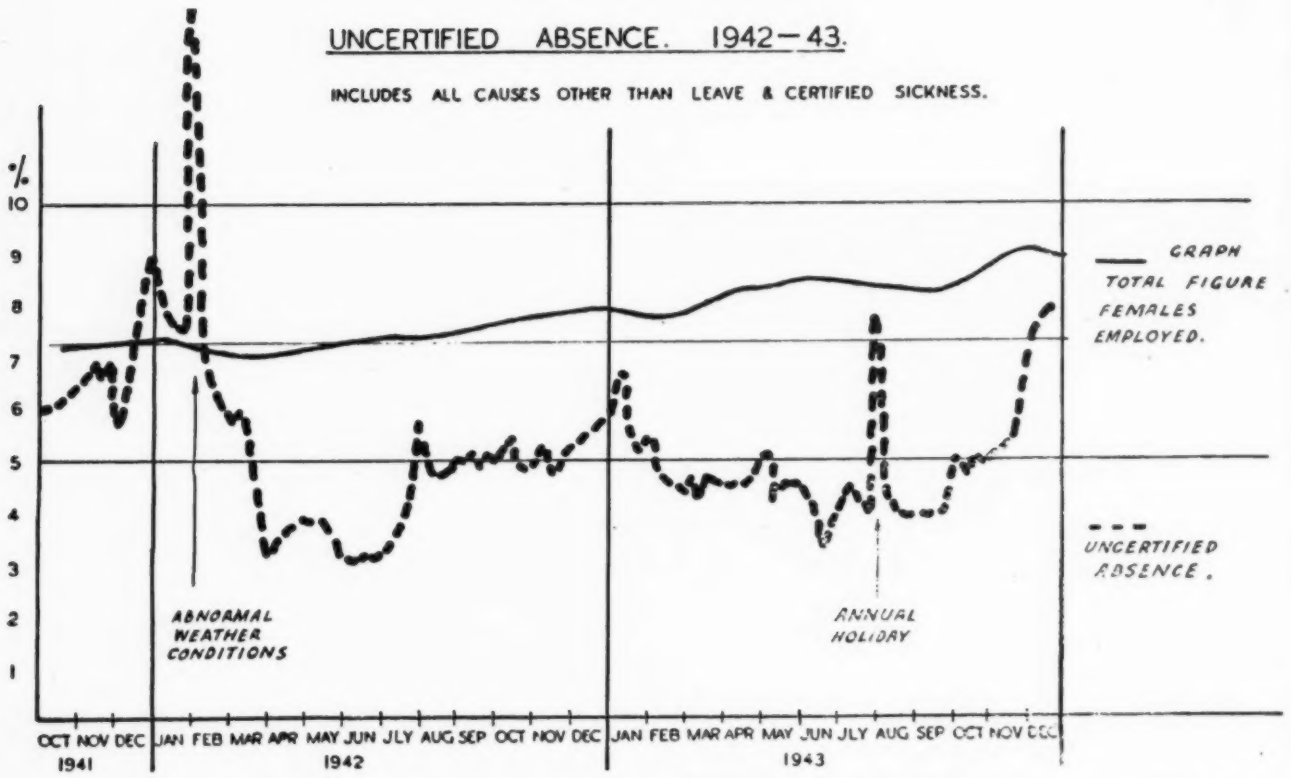

It is most fortunately true that a large majority of accidents and ailments have been of minor severity, nevertheless, they all required attention. Each such minor case might develop into a serious illness or accident, involving prolonged absence. The simple chill may be followed by pneumonia, the simple abrasion may develop into a whitlow or septic arm. In the realms of medicine it is most emphatically true that "a stitch in time saves nine."

Neglect, the responsible factor in so many cases, has been countered by urging employees to attend for treatment promptly. To this end the cooperation of the superintendents and foremen has been sought and willingly given; the special hazards of certain processes have been brought to their notice and their cooperation has resulted in a much earlier attendance of the injured employee at the First Aid Room.

Sepsis, which cripples the hands and fingers of employees, has been reduced, in comparison with the preceding year, by a third, from an average of 66 cases a month in 1942 to 46 a month in 1943, and every endeavour is being made to reduce this figure still more. Such a reduction means that not only have many employees been spared the pain and suffering of septic fingers or hands, but loss of their productive output has been obviated.

This result has been aided by the use of modern drugs, administerable only by a doctor, and by the First Aid Room routine which refers to him all cases that are not yielding to treatment on the second occasion when the injury is seen by the nurse.

A further aid has been the provision in the First Aid Room of treatment for those cases which have required the insertion of stitches, the skilled removal of foreign bodies from the lens of the eye, and the diagnosis and treatment of serious illness and industrial dermatitis, all of which are outside the scope and training of the nurses.

In the absence of the medical officer, all these cases would of necessity have been referred to hospitals or outside medical practitioners, with resulting delay of treatment and loss of production time.

Reportable accidents involving at least three days' absence from work have declined to one-third of their former number, due to early treatment and the rehabilitation now provided at the place of work.

This section of the report would not be complete without reference to the excellent work of the Safety Committee. The accident figures show clearly that despite the advent of "green labour" the accident rate has been held at the figures of the preceding year.

Sir Wilfred Garrett, H.M. Chief Inspector of Factories, in his annual report states that there has been an increase of over 100% in accidents to female employees engaged in light engineering.

It is believed that the figures submitted in this document are directly comparable with those on which H.M. Inspector's Report is founded, and that the results given, must, against the background of the national average, be deemed most satisfactory.

Survey of Clinical Work

IN ADDITION to carrying out pre-employment examinations, supervising the First Aid Rooms and controlling sickness absenteeism, the medical officers have given several thousand consultations to both staff and factory employees.

Most of those cases were referred from the First Aid Room, welfare and labour departments, departmental heads and foremen; the remainder were seen at their own request, a practice which is considered to be most important and is encouraged.

Many cases of major illness—some diagnosed for the first time—were referred to their own doctors or to hospital. In special cases, after consultation with their doctors, visits were made to their homes or to the hospital.

Out of 50 cases of pulmonary tuberculosis known to the medical department, 17 were diagnosed whilst at work. Contact has been maintained with those undergoing sanatorium treatment, and periodic reports of their progress have been sent to the management.

Employees suffering from heart disease, blood pressure, respiratory disease and the more serious psychoses, after consultation with their departmental heads have been, whenever practicable, transferred to work considered to be within their capabilities. Their progress has been watched and in a few cases retirement from work advised.

Minor medical and surgical ailments have not proved difficult to treat; indeed a considerable number were cured whilst carrying on at work. It is pleasing to record that the superintendents and foremen readily concur in requests from the medical department to make temporary transfers for such employees.

Employees engaged on industrial hazards, *e.g.*, chrome plating and luminising, etc., were periodically examined,

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and in addition to this statutory requirement a number of complete blood examinations were carried out, revealing four cases of severe anemia, one of pernicious anemia, and one of malaria.

Minor industrial disease, especially oil dermatitis, reacted most favourably to the prophylactic measures advised. It is believed that when the washing facilities and barrier creams provided for the employees are fully utilised, this minor hazard causes very little trouble.

TOXICOLOGICAL INVESTIGATIONS: In the factories in question conditions were not such as might at first sight be thought to yield many hazards from industrial poisons or injurious processes. Much of the work, especially the assembly of light electrical equipment, is carried out in comfortable light and airy modern buildings, where sitting is possible and extremes of heat and cold are not encountered. It is therefore most instructive that the following typical cases of industrial ill-health, both local and constitutional, should have arisen.

ADHESIVE VARNISH: This was found extremely difficult to remove from the skin. The use of thinners for this purpose caused more trouble than the varnish itself. On investigation it was found that if hot water was applied before the skin dried the varnish could be easily removed.

BENZYL ALCOHOL: This substance produced a rash extremely resistant to treatment. Many of the barrier creams and dermatitis cures normally in use were tried, but without success. Finally a preparation was dispensed in the First Aid Room which not only cured the rash but, in addition, proved to be an excellent preventive.

CHROME PLATING: During the summer months a peculiar rash broke out amongst the chrome platers. This was found to be caused by a draught from an open window which splashed a spray of alkaline solution on to the operators as they lifted the work out of the alkali bath into the clean water bath. No more rashes occurred when the two baths were placed alongside.

LIGHT ALLOYS: A periodic survey of the septic rate of the accidents reported from the First Aid Room showed that cutting wounds of the operators using certain light alloys rapidly turned septic. The research laboratory was approached and its report showed that these substances contained magnesium which, even in small quantities—in this case less than 1%—caused a virulent infection similar to gas gangrene. The cooperation of the foremen was sought to enforce immediate attendance at the First Aid Room for the most minor cuts. Instructions were given to the nursing staff to remove all minute particles of metal after thoroughly irrigating the wound. The septic cases from this source were then considerably reduced.

CARBON TETRACHLORIDE: An investigation of the toxic properties of this substance commenced two years ago. At that time female employees working where it was in use frequently complained of nausea and vomiting, the latter symptom especially during the night shift. Advice carried out with regard to ventilation, frequent changing of the polishing rags, and fixing lids on the containers effected a reduction in the severity of the sickness. This reduction was further accelerated when the process was moved to larger and better ventilated accommodation. For a short period trychlorethelene was used instead of carbon tetrachloride; no benefit to the employees' health was observed. A recrudescence of gastric symptoms amongst operators pointed to the need for a further investigation. On analysis a high concentration of carbon tetrachloride near to the danger limit was found present at one site in the room affected. The plant department was asked to install further exhaust ventilation—on the completion of which complaints practically ceased.

SYNTHETIC INSULATING MATERIAL: Operators drilling certain proprietary materials developed symptoms similar to those of acute bronchitis. On investigation it was found that the chest condition was due to formaldehyde fumes given off by the substance while being drilled. As only a small quantity was in use, nothing more than the reassurance of the operators was needed.

ZINC AGUE: Periodically it had been noticed that a certain operator was reporting to the First Aid Room with what appeared to be attacks of malaria. After investigation it proved to be "zinc ague." Precautions to minimise the risk of attacks were advised and the operator reassured that no permanently harmful effect would result.

Cooperation

THE medical department's relationships with the personnel and welfare department have been of the closest and happiest. This close cooperation has ensured that all parties have had immediate access to the advice and experience of the others. Such close relationships are not within our experience the case in all organisations, and over-all efficiency is bound to be highest where, as in our case, there is no attempt to establish artificial dividing lines.

A typical example of routine cooperation is the absence recording section which by its comprehensive system provides, from a common source, data for both the medical department (sickness) and the labour department (disciplinary and enquiry purposes).

The welfare visitor operates for both departments and carries out visits for medical enquiry, ordinary welfare contact or assistance, and disciplinary purposes when required. Domiciliary nursing advice has also been given on many occasions. A daily average of some 16 visits is attained, but unfortunately, the visiting is not as extensive as is really necessary, owing to wartime petrol restrictions.

Another example is seen at the smaller factories, where the nurse carries out both medical and welfare duties under joint supervision.

It is gratifying to record that the fullest collaboration of various departments has been placed at the disposal of the industrial health department, for it must be emphasised that an industrial health service—if it is to be efficient—requires team work; the research laboratories, the works chemists and engineers, personnel in charge of the employees' welfare, and the industrial medical officer must pool their respective specialised technical knowledge, and if this is done—as has been shown in some of the cases—then much ill-health can be discovered, prevented and remedied.

Before continuing with the section of the report dealing with absenteeism the following general survey of the subject may help to clarify the manner in which it has been discussed and to enable a correct interpretation to be obtained of the figures given.

Absenteeism and Its Significance

TO MEET the strict economic needs of normal peacetime trade no less than in the drive for maximum war production, every source of lost working hours means lost output, with consequent delay in the supply of materials, and resultant financial loss. The realisation of this fact has given managements cause for much thought which has prompted, and is still prompting them to make every effort to apply remedial action.

In this atmosphere the problem has been discussed in the technical and lay press and the word "absenteeism" has been attached to it indiscriminately. The choice of this word is unfortunate for the dictionary definition implies "avoidable absence from deliberate choice"; and it would be unfair to the British working man and woman to suggest that, in anything but a minority of cases, avoidable absence from deliberate choice is the reason for failing to attend work. It is therefore better in any systematic discussion of the facts to limit the use of the word "absenteeism" to those occasions when it is necessary to imply deliberate intent to be absent.

In order to assess the proportion of deliberate absenteeism it is necessary to exclude from the total of employees absent those cases in which the absence is known to be justified. These include: (*a*) Absence through sickness covered by a doctor's certificate. (*b*) Absence with permission or through disciplinary suspension. This leaves a third category of (*c*) Absence for reasons other than the above of which a high proportion are nevertheless justifiable. These take the form of, firstly, illnesses of too short a duration to need medical attention; secondly, more serious illnesses destined to be certified later; thirdly, absences due to non-medical reasons for which leave would have been granted had a request been made.

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The reason for including only certified sickness under (*a*) is that the most obvious excuse for deliberately taking a day off is to plead some minor illness, and there is thus an element of doubt where such minor sickness is given as the reason for short term absence. It is obviously undesirable to insist on medical certification for these short illnesses, if for no other reason than that it is frequently impossible for the doctor to give a certificate based on any evidence other than the patient's own statement. Nevertheless, an employee with a severe chill or a bilious attack is as unfit for work as one who has a broken leg, and it is important therefore that short term absence should not be regarded as unjustifiable. A brief rest taken in time frequently enables an employee to recover full health where otherwise a considerable loss of time might have resulted later from a more serious breakdown in health.

As physical health in so many cases must be viewed against a background that is psychological the problem of absenteeism to be fully appreciated must take into consideration the relationship that has existed and may still be present among the parties concerned. They are the employer, the employee and the employee's own doctor.

The Employer

THE employer in wartime is experiencing a labour shortage, whereas previously a too-ample supply of labour existed—a situation which it is pre-supposed will not be allowed to exist after the war—and he could always recruit a reserve force large enough to permit a surplus to be balanced against the number absent. This he could do at no extra cost as under the system of hourly payment absent workers are not paid. The employer has the work and his output is, apart from material considerations of space and plant, limited by the difficulty of obtaining labour. He has met this shortage by engaging persons whom in pre-war days he would not have deemed suitable and is also employing married women, older men and women and juveniles. Increased hours obtain, and high overtime rates and piecework earnings tend to increase the cash payments to workers for services rendered to a much higher figure than the standard earnings of his more efficient peacetime labour forces which, it must be remembered, were composed of persons of his own choice. He will experience the utmost difficulty in replacing unsatisfactory employees should he discharge them or apply disciplinary suspension without pay. He is, therefore, deprived to some extent of the means of upholding discipline upon which he has relied absolutely for years. In consequence, his foremen are thrown upon their resources to do what they can by persuasion and leadership, and in the last resort by reporting incorrigible offenders to the National Service Officer via an "approved committee" as laid down in the Essential Works Order. In these circumstances, it must appear to the employer that if absence has increased since the outbreak of war then it is because employees no longer fear dismissal and that they can take days off with impunity. This view is supported in the employer's mind by the knowledge that increased earnings will enable the employee to forego payment for the time lost. In other words, there is the temptation for the employer to conclude that any increase in absence is a matter of deliberate absenteeism with which he had not to contend in time of peace.

The Employee

ON THE other hand, the workers see matters in a different light. The war may have changed their employment from economic insecurity into a condition where a not inconsiderable pay packet is guaranteed to them each week. Work at high pressure of a type to which many may not previously have been accustomed makes considerable demands upon them. Working hours are long and holidays few and short. Home and family life has changed and in many cases become disrupted. As an example, there are many women who in time of peace were occupied solely with housekeeping, but who are now doing war work themselves and thereby adding a share of the house-work to the calls on the diminished leisure of other members of their households. At the same time a number of aids to the housewife have ceased to become available or have become much more difficult to obtain. Thus a shopkeeper who delivered goods to the door in time of peace now refuses to deliver them at all and is even reluctant to take orders for goods to be called for later. The worker-shopper has to take her stand in the queues at shops which are, more often than not, open for hours very much shorter than those of her place of employment. Shopping has either to be done on a Saturday afternoon, when the queues are longest, or to be crowded into a meal hour—frequently at the expense of the meal. In very few cases can shopping be entrusted to neighbours who have their own problems. The government has done some excellent work to ensure that sufficient food is available in the shops to meet the demands of the people, but has paid less attention to the serious problem of transferring it from the shop to the larder of the war worker. One small step in this direction is perhaps the recommendation by the Ministry of Labour that two hours shopping leave per week should be granted women requiring it.

Following the week's work in the factory the working wife is invariably faced with the week's cleaning at home and not infrequently also the week's wash, for it is highly probable that the laundry, to which she might have transferred the wash when she started work in the factory, refused to accept new customers.

The male worker too has problems arising out of early closing hours, overtime and Civil Defence or Home Guard duties which make a call upon his restricted leisure hours.

Life under these conditions provides little rest or recreation; the cease-work signal merely heralds a journey home on crowded transport to an unwarmed house, with grates to clean, dishes to wash, beds to make and first and most urgent of all an evening meal to prepare. Saturday brings shopping, Sunday washing and ironing and Monday the same dreary round. Life becomes an existence bordering on chronic overwork with the prospect of only one week's break in the year for a "holiday" which has to be spent at home in the interests of the appeal to avoid unnecessary travelling. The time is either an uncomfortable leave among arrears of domestic duties or is devoted to overtaking the deferred "spring" cleaning, house decoration and the like. In either case the feeling is probably present that as the break is of such short duration the utmost must be wrung from it, which may result in the loss of any sense of physical rest or mental relaxation. In these circumstances there is small cause for wonder that when the strain becomes too great workers are prone to feel that they are already doing as much as can be reasonably expected of them and are within their rights by taking a day off if some immediate domestic need arises. There is, of course, a small element devoid of conscience who take time off to go to the cinema or who simply disappear when they don't feel like work; it is evident that these constitute a very small minority.

Another fact which has to be taken into account is that there is a large number of workers not accustomed to factory conditions who have been compulsorily directed or transferred to work which they would not themselves have selected. Such persons are ready to seize upon any excuse which may appear to be reasonable for them to advance, such as difficulties of transport, unsatisfactory lodgings or housing, and to take the time away from work which is perhaps not congenial to them and for which they are unsuited either physically or temperamentally.

The Doctor

THE human problems of the worker are familiar to the majority of doctors, in so far as they are influenced by domestic conditions. Few doctors, however, have sufficient personal knowledge of factory work and industrial life to be able to form an opinion as to the suitability of an individual for specific work. They rightly believe that the majority of their patients are decent, trustworthy people, ready to give a fair deal in return for one, and upon past experience the doctor has been guided by his judgment of the individual in the granting of certificates of incapacity to patients where working conditions have been alleged as an excuse for or as a contributory factor to illness. The problems of the worker away from work—

ON THE CONTENT OF *Niacin* IN CANDIES

THOUGH its quantitative daily requirement is not as yet determined, niacin is nevertheless recognized as a B vitamin essential in human nutrition. Many candies—those in the manufacture of which milk, butter, eggs, fruits, nuts or peanuts are used*—are good sources of niacin. The average niacin values of these candies are here shown.

Penny Candies—peanut squares, chocolate fudge, caramels, chocolate coated malted milk balls, and peanut butter rolls present 2.02 mg. of niacin in approximately 2.04 oz.

Bulk Candies—peanut brittle and chocolate coated nut caramels, almonds, peanut clusters and raisins present 2.09 mg. of niacin per 2.15 oz. (from 5 to 20 pieces, depending on the kind and size, make up this quantity).

Candy Bars—chocolate nut bars, peanut bars and the following types of chocolate coated bars: caramel, toffee, coconut, marshmallow, peanut butter, and nut roll present 3.29 mg. of niacin in approximately 2.00 oz.

Packaged Candies—mixed, sold in pound boxes, present 2.26 mg. of niacin per 2.00 oz.

In fairness to these candies it must be stated that the niacin content of many commonly eaten desserts as well as other everyday foods is considerably lower.

*In 1943 the candy industry used 125,000 tons of nuts and peanuts, 10,000,000 pounds of fruits, 6,000,000 pounds of eggs, 400,000,000 pounds of dairy products, as well as 400,000,000 pounds of chocolate products.

THE NUTRITIONAL PLATFORM OF CANDY

1. Candies in general supply high caloric value in small bulk.

2. Sugar supplied by candy requires little digestive effort to yield available energy.

3. Those candies, in the manufacture of which milk, butter, eggs, fruits, nuts or peanuts are used, *to this extent* also—
   a) provide biologically adequate proteins and fats rich in the unsaturated fatty acids;
   b) present appreciable amounts of the important minerals calcium, phosphorus, and iron;
   c) contribute the niacin, and the small amounts of thiamine and riboflavin, contained in these ingredients.

4. Candies are of high satiety value; eaten after meals, they contribute to the sense of satisfaction and well-being a meal should bring; eaten in moderation between meals, they stave off hunger.

5. Candy is more than a mere source of nutriment—it is a morale builder, a contribution to the joy of living.

6. Candy is unique among all foods in that it shows relatively less tendency to undergo spoilage, chemical or bacterial.

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deprived of his income with the exception of benefit under an insurance scheme, the deficiencies of which are all too well known—are familiar to the doctor, but the problem of the worker at work, the urge of the management for production and the atmosphere of haste and urgency in which factory life is pursued fall largely outside his purview.

Since the war, however, certification has increased considerably, and moreover, at a time when the doctor is shorthanded, overloaded with other work such as attending to the patients of other doctors who have been called to the Forces, with whose medical history he is obviously unfamiliar. It is axiomatic that a doctor must give his patient the benefit of the doubt, and it is important that he should do so in diagnosing simple muscular aches, chills and minor illnesses of that type. None can deny that a doctor can only assess such minor illnesses on a basis of mutual good faith. As production becomes more urgent, however, absence from work comes more in the limelight and it is only natural for managements to allege that such absence is without reasonable excuse, and to suspect that certificates are far too easily granted. Most doctors know that this unjustified certification is confined to an insignificant number of cases and cannot be held in any way responsible for this increased absence from work. The medical man is anxious to serve his patient in every way he can, indeed many of them have gone into industry to remove if possible, industrial disease and prevent illness. This is the obvious approach by a medical man trained to cure by removal of the cause. On his arrival in industry he is expected to diagnose without knowing the history of the case. Naturally he asks for the past sickness record of the individual and if it is provided he can then offer a medical opinion of value. Furthermore, if progress is to be made information or reliable data from other industrial units engaged on similar work is of obvious value. Data of this type must be compiled so as to allow true comparisons to be made, which can only be achieved by the use of a uniform method of recording absence from work.

National Statistical Researches

A SIMPLE statistical analysis carried out carefully and logically is an aid to the understanding of many issues; frequently it is only by the study of an accumulation of data that the solution to problems can be found. It is essential, however, that data should be consistently collected on a standardised system for any true conclusions to be drawn when practical application of the knowledge derived may follow.

This is particularly true of health and welfare work in which it can be asserted that statistics have a twofold value. Within a factory they can assist in the solution of problems of clinical and preventive medicine whilst on a national scale the figures from many factories can provide a fund of data for the research worker in public health and social medicine. In either of these fields an opinion unsubstantiated by figures can never be convincing.

Doubtless many of the larger industrial organisations, confronted with the problems of health and labour aggravated by the war, have been giving serious consideration to the efficient maintenance of records of information relating to these subjects. This is evident from the publicity given to the subject of "absenteeism" in the press during the past year and frequently in the reporting of meetings of authoritative bodies. That considerable confusion of thought exists on the subject is apparent from the loose references to percentages of absenteeism. It is by no means unusual to hear of quotations such as "10% absenteeism," without the slightest indication as to whether it refers to all workers or dayshift only; all employees, either staff, hourly-paid or part-time. In some cases doubt even exists on matters radically affecting the validity of the figures, such as whether absence due to certified sickness is included or excluded, or whether all absence is included or the figure confined to "absenteeism with deliberate intent." Further, a variety of methods of presenting statistics exists. For example, absence from certified sickness may be given as follows:

1. Working days (or hours) lost per employee per working year (or working week).
2. Number (or per cent.) of employees absent each day.
3. Percentage working hours lost (including or excluding some or all overtime).

The figures drawn upon in this report have been compiled on a reasonably accurate basis from the year 1938, at which time although records were not kept with the same care as when war rendered the problem more acute, they were capable of being collated into the three main categories subsequently standardised.

In this large industrial organisation, in the years 1938 and 1939, the daily figures of employees absent from all causes amounted to some 5% of the total number of workers. In round figures this was made up of about 0.5% on leave, and the remaining 4.5% equally divided between certified sickness, and unknown causes, the sickness figure sometimes exceeding the unknown causes and at other times being slightly less, according to a marked seasonal variation.

All three categories of absence are subject to seasonal variation, and the sum total gives a total absence figure which is at its highest when winter cold makes travelling to work most unpleasant, or when summer heat makes work-rooms unpleasantly hot and the open air is most inviting by contrast. In spring and to a lesser extent in autumn, when neither excessive heat nor excessive cold is encountered, absence is at its lowest.

Certified sickness exhibits its annual peak in January to early February—the precise date varying slightly from year to year—but always exhibiting a marked decrease as spring approaches.

Throughout the remainder of the year it remains more or less steady, with a slight reduction before the midsummer and Christmas holiday periods. It would appear that persons who would be justified in absenting themselves for sickness in the week before the holiday, endeavour to struggle on with their work, so as not to be in bed over the holiday period. After the holiday these people do not return, and their recovery may be retarded by their failure to take rest and treatment in time, which is probably a contributory factor to the marked rise in sickness after the Christmas holiday, which is the most striking feature of the sickness curve.

The number of persons on leave, too, undergoes a regular cyclical change, although in the particular records under discussion its true form is obscured by the inclusion in the figures of maintenance men obliged to take their holiday at some time other than the recognised week. This means a considerable seasonable increase of leave over the whole summer, which was enhanced in pre-war years by hourly-paid workers taking an extra week's holiday by permission.

We now continue with the Medical Adviser's Report:

Absenteeism in the Year Under Review

IN CONTRAST with former years, when only gross figures of absenteeism were compiled, a new system was evolved and applied, whereby the reasons advanced for each individual absence were recorded.

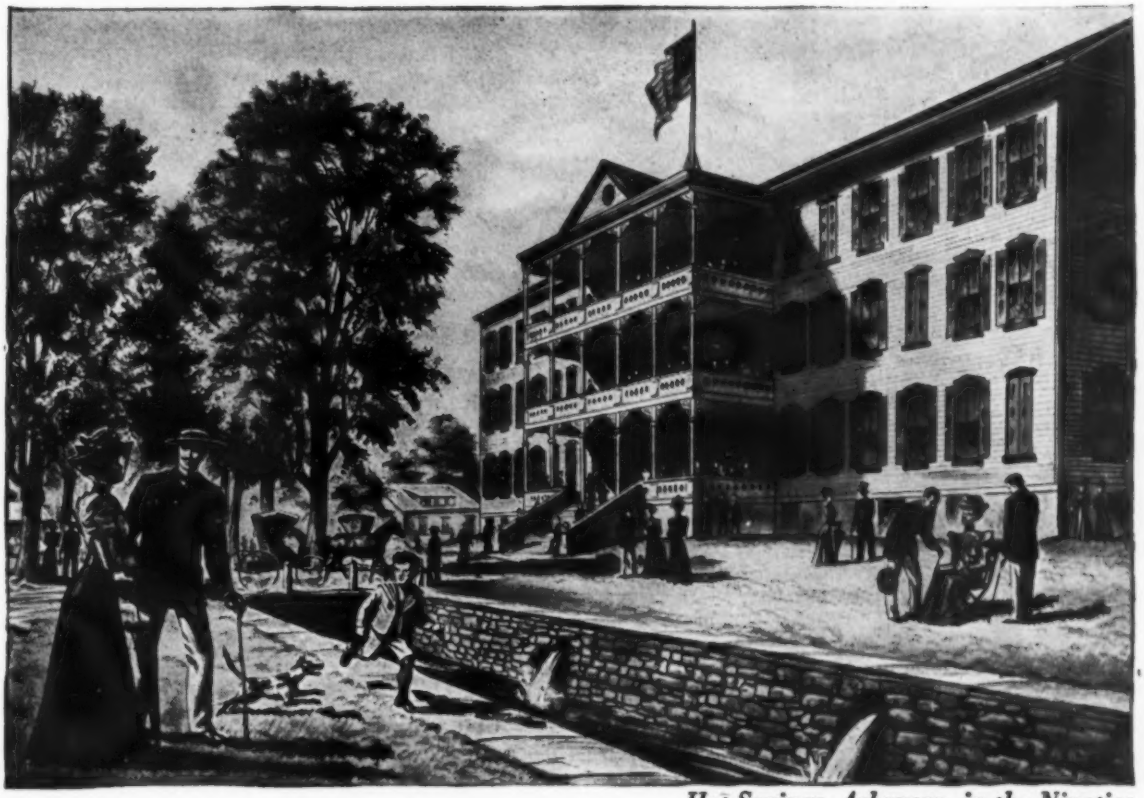
However, a brief description of the main principles involved is given later in full detail in the section describing the method of working the Absence Record System so as to allow interpretation of the graphic illustrations therein presented.

SURVEY OF CERTIFIED SICKNESS ABSENCE (Hourly Paid Employees): Absences under this heading have gradually increased since the beginning of the war, until April, 1943. This is in part explained by the increasing proportion of female employees and in part by cumulative industrial fatigue and war strain.

During the months of May, June and July, a remarkable fall took place—as low as 3%—to be followed immediately after the holiday by an exceedingly steep rise which heralded the approach of some acute infection. which later proved to be a widespread influenza epidemic.

It is interesting to note that even at the worst period the epidemic never caused more than 10% certified sickness absence (16% from all causes) which it is understood compares favourably with much higher figures in other undertakings, both local and national.

A useful yardstick for the assessment of certified sick-



Hot Springs, Arkansas, in the Nineties

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ness is to be found in the National Health Insurance Society's pre-war figures for absence of over three days (same period as our own). They show 14 days' certified sickness absence per year for females, and 11 days for males, *i.e.*, 4.5% and 3.5% respectively, of production time. This should be compared with our own figures which, with the exception of the influenza period, have varied between 3% and 5%.

SURVEY OF UNCERTIFIED ABSENCE (Hourly Paid Employees): With regard to uncertified absence, the medical department has confined itself to cases of minor sickness, only reviewing deliberate absenteeism when individuals were referred for examination from other departments.

Prior to March, 1942, uncertified absence was very high. This was corrected by insisting that employees must cover their absence by medical certification, and by the psychological effect of the recently established medical department.

It would be an injustice to the large majority of employees if no allusion were made to the fact that little evidence of deliberate absenteeism has been seen, 1% being a fair estimate.

This category of absence also includes many employees who were absent for reasons for which leave would have been granted had they not omitted to ask for it.

Furthermore, there are a certain number of employees who have left the district and have no intention of returning to work; such employees must be retained on the absentee lists until removed by the Ministry of Labour; quite frequently many weeks elapse before they are traced and consequently removed from the register.

Great care is needed in comparing today's uncertified absence figures with those of pre-war days, for the conditions are so very different.

The pre-war conditions were much more favourable than those now obtaining and consequently a considerably lower rate should have been expected.

Put another way, war-time conditions should lead one to anticipate a considerable increase in uncertified absence over the rates ruling before war broke out.

Some of the factors leading to such differences are shown in the accompanying parallel columns for purposes of comparison.

In addition, petty annoyance, minor frustrations, more particularly the ever present anxiety as to absent kinsfolk and friends, especially those on active service, and in many cases the grief occasioned by loss, produces a cumulative effect on the nervous system of most individuals.

It is the considered opinion of the medical officer that resistance to disease is, as a consequence, lowered; evidence of this was seen in the rapid spread of the mild influenza infection at the end of the year.

Before the War:	*During the War:*
Free choice of labour.	Directed labour.
Fear of unemployment.	Ministry of Labour Control—many employees would welcome their release.
Under the 1937 Factory Act overtime practically ceased.	Extended hours of work.
Limited night shift.	Extensive night shift.
No black-out.	War-time black-out.
Negligible proportion of married women.	Approximately 50% are married.
Free evenings for relaxation.	Home Guard, N.F.S., and Civil Defence Duties, etc.
Settled family and transport conditions.	Domestic difficulties for all members of households, and reduced transport facilities.
Stable wages.	Enhanced earnings, with restricted spending.

ABSENCE WITH LEAVE: The vast majority of applicants for leave have advanced reasonable requests, *i.e.*, husband on leave, etc. The natural desire for families to enjoy their holidays together increased absences under this category during the summer months.

It is considered wise to grant such leave, for refusal will only create resentment and the employee will have little compunction in staying away from work, feeling justified in doing so.

STAFF EMPLOYEES: Absence amongst staff employees, also subject to war-time conditions, averaged 6% as against 11% for the hourly paid employees. Certified sickness was fractionally higher than that of uncertified absence; the reverse is the case for hourly paid employees.

It should be noted that the absence amongst females (hourly paid) is approximately three times as great as that amongst males (hourly paid) and on a Saturday morning is six times as great, also the proportion of females to male hourly paid employees is nearly three to one, whereas amongst the staff the proportion is more even.

On relating numerically the relationship of male to female staff employees, to that of hourly paid employees, the difference in absenteeism is materially reduced.

It may well be that if similar hours of work obtained, the gap between the two would have been very narrow indeed.

The Absence Recording System

THE system about to be described is based on the principle that the point of contact with the employee should, wherever possible, be the foreman of the department in which he or she works. This is the logical and natural way of working in a modern factory where the foreman, far from being the figure in blue overalls with an inverted clay pipe whom the popular interpretation of the word brings to mind, is a responsible official in control of a department in which the employees may number a hundred or more. To these people the foreman represents the management, he is responsible for their discipline, and to him their explanations are naturally given, just as in a commercial office the staff, if prevented from coming to work, communicate with the chief clerk or departmental head.

It would be absurd if a departmental foreman did not know the reasons for his employee's absences. Not only would he be totally unable to take the disciplinary action necessary to ensure a smoothly working department, but he would have no data on which to decide how to plan the work so as to minimise the losses due to absence, which entails setting another operator to carry on the work of one who will be absent for some time and allowing the work to wait where an immediate return is expected. No matter how the information is gained, the foreman must be familiar with it, and any system which ignores his essential needs will necessitate his carrying out an independent investigation for his own purposes. It is therefore contended that it is the foreman who should make the first enquiries about absence, equipped as he is with the necessary personal knowledge to assess the validity of any excuse advanced by a worker and standing, as he does, in a relationship to the employee in which it is natural that he should ask for explanations and where his reasons for requiring them are obvious.

It is of particular importance, too, that he is in a position to obtain the required information with a minimum loss of production. This last point is not always appreciated when the alternative plan is advanced of interviewing all returned absentees at a central point before permitting them to return to their departments.

Taking conditions at the worst part of the week, the number of absentees on a Saturday morning may be almost twice as great as on any other day, and these return on a Monday morning when the pressure on the labour office and medical departments is greatest on account of the placing of new employees starting a full week. As a result several hundred or even thousand Saturday-absentees will spend the greater part of Monday waiting about to be examined before returning to their departments—which is bad psychologically as it does not indicate anxiety on the part of the management to get them back to the job, and in addition the loss of working time due to Saturday absence may be doubled or even trebled. When the long wait in the queue is over, and the returned absentee at last enters the central investigating office, only a cursory questioning or a hurried medical examination can be given and this is unsupported by the intimate personal knowledge of

BOMBING MISSION (medical version)

TARGET FOR TODAY...not Japs, but *rats*...mosquitoes...flies...disease-carrying insects and vermin that infest the steaming jungles of the Pacific.

For this is a *bombing mission in white!* The "bombs" are loaded not with T.N.T., but more likely with D.D.T. which, sprayed from the air, seeks out and kills the adult mosquito and fly.

Yes, with D.D.T., with the aerosol bomb and countless other new developments in sanitation and disease control, the soldiers of medical science are proving themselves fighting men through and through. And, like so many other fighting men, they find pleasure and cheer in a few moments relaxation with a cigarette. Probably a Camel for, according to actual sales records, Camels are the favorite with smokers in *all* the services.

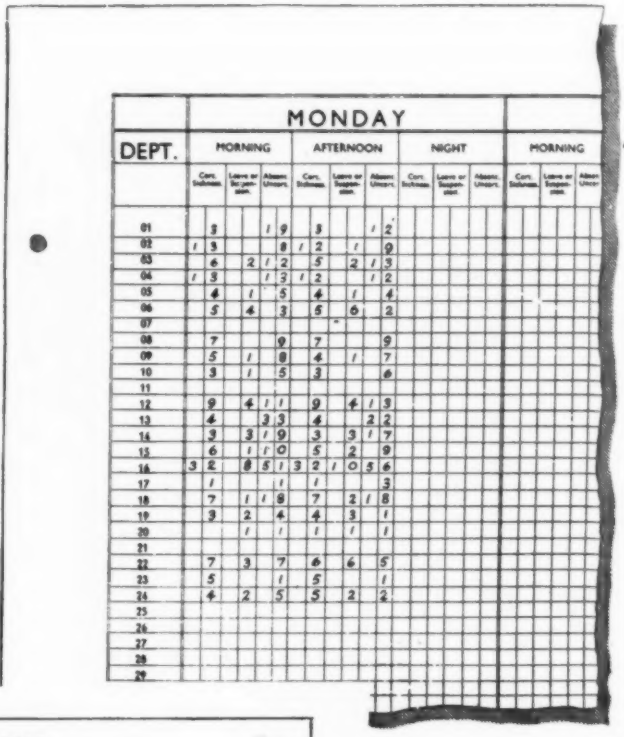
Camels *Costlier Tobaccos*

R. J. Reynolds Tobacco Company, Winston-Salem, North Carolina

the individual which his own foreman would possess. After this a report must be made out and sent to that foreman, who is often in a position to "see through" the excuses given, and will then himself have to interview the employee for disciplinary reasons.

If this happens frequently the foreman is almost certain to form a low opinion of the system for dealing with absence and of the officials working it. On the other hand by making the foreman's investigation the starting point of the routine, delays are avoided as each foreman deals only with the comparatively few absentees from his own department. Mutual confidence is promoted, for the foreman can encourage any employee who is still in ill-health on his or her return, to make full use of the medical services available. A central record can be compiled departmentally (Fig. 1) from returns furnished by the foreman, and used as a source of statistics covering the factory as a whole, to draw the attention of the medical authorities to recurrent illness, and to set in motion a centralised routine for visiting at their own houses employees who have neglected to explain their absence.

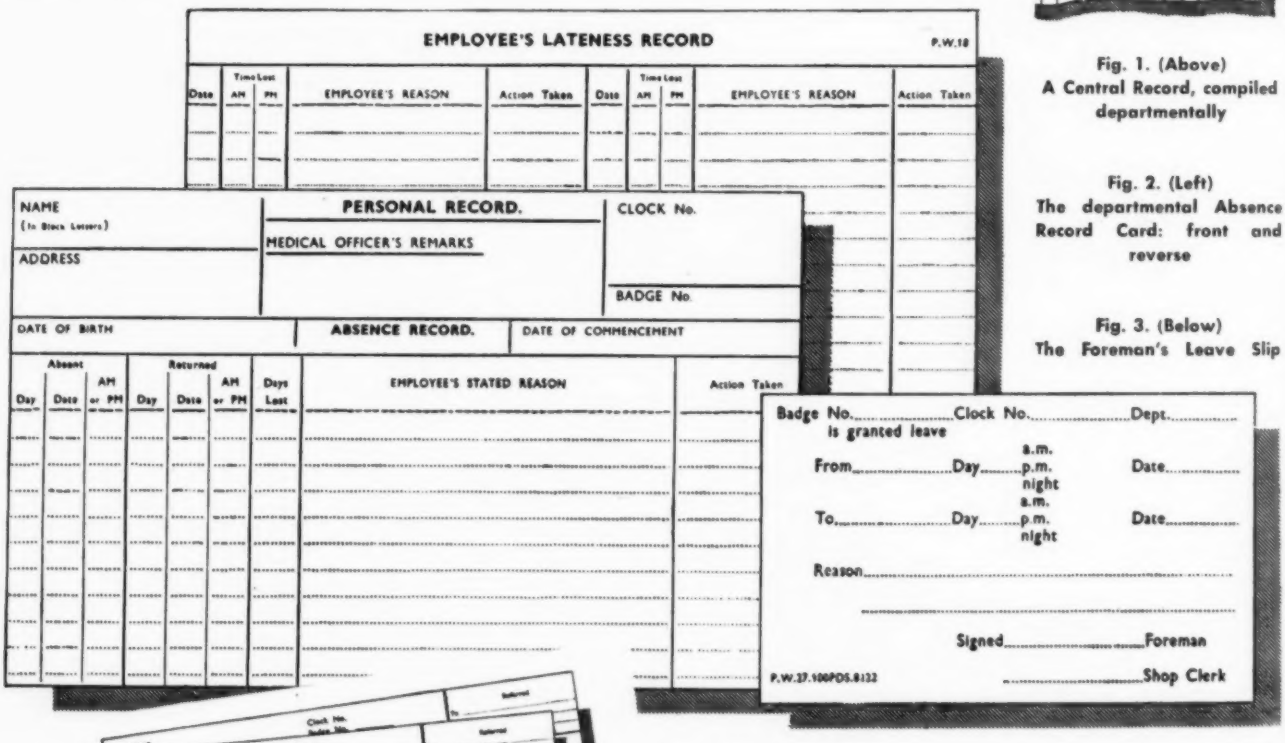
Totals of persons absent throughout the organisation are immediately available each morning and each afternoon of every day and the routine followed provides for copies of this to be laid before the medical officer and the management as soon as obtained. In consequence any abnormal change immediately makes itself apparent and prompt medical or managerial attention can be given to the application of remedial action.



MONDAY

DEPT.	MORNING			AFTERNOON			NIGHT			MORNING		
	Corr. Sickness	Leave or Suggestion	Absent Unsatis.	Corr. Sickness	Leave or Suggestion	Absent Unsatis.	Corr. Sickness	Leave or Suggestion	Absent Unsatis.	Corr. Sickness	Leave or Suggestion	Absent Unsatis.
01		3		1	9		3			1	2	
02	1	3			8	1	2		1		9	
03		6		2	1	2		5		2	1	3
04	1	3			1	3	1	2			1	2
05		4		1		5		4		1		4
06		5		4		3		5		6		2
07												
08		7				9		7				9
09		5		1		8		4		1		7
10		3		1		5		3				6
11												
12		9		4	1	1		9		4	1	3
13		4			3	3		4			2	2
14		3		3	1	9		3		3	1	7
15		6		1	1	0		5		2		9
16	3	2		8	5	1	3	2	1	0	5	6
17		1			1			1				3
18		7		1	1	8		7		2	1	8
19		3		2		4		4		3		1
20				1		1		1		1		1
21												
22		7		3		7		6		6		5
23		5				1		5				1
24		4		2		5		5		2		2
25												
26												
27												
28												
29												

Fig. 1. (Above)
A Central Record, compiled departmentally



EMPLOYEE'S LATENESS RECORD P.W.18

Date	Time Lost AM	Time Lost PM	EMPLOYEE'S REASON	Action Taken	Date	Time Lost AM	Time Lost PM	EMPLOYEE'S REASON	Action Taken

NAME (In Block Letters)

ADDRESS

PERSONAL RECORD.

MEDICAL OFFICER'S REMARKS

CLOCK No.

BADGE No.

DATE OF BIRTH

ABSENCE RECORD.

DATE OF COMMENCEMENT

Absent Day	Absent Date	Absent AM or PM	Returned Day	Returned Date	Returned AM or PM	Days Lost	EMPLOYEE'S STATED REASON	Action Taken

Fig. 2. (Left)
The departmental Absence Record Card: front and reverse

Badge No.....Clock No.....Dept.....
is granted leave

From.....Day.....a.m. / p.m. / night Date.....

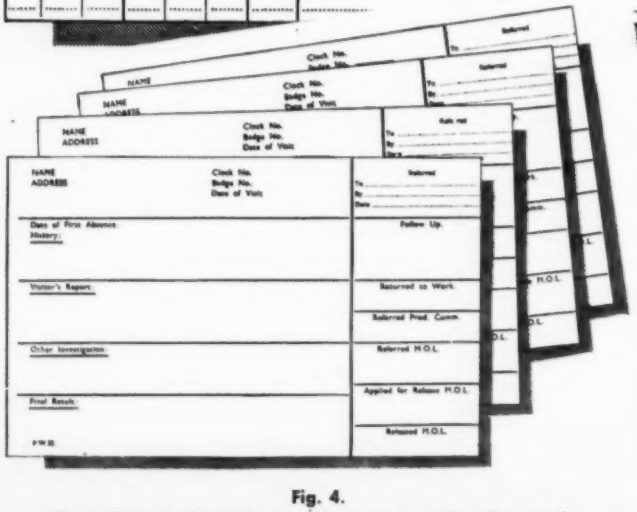
To.....Day.....a.m. / p.m. / night Date.....

Reason.....

Signed.....Foreman

P.W.37.100PDS.8132 .....Shop Clerk

Fig. 3. (Below)
The Foreman's Leave Slip



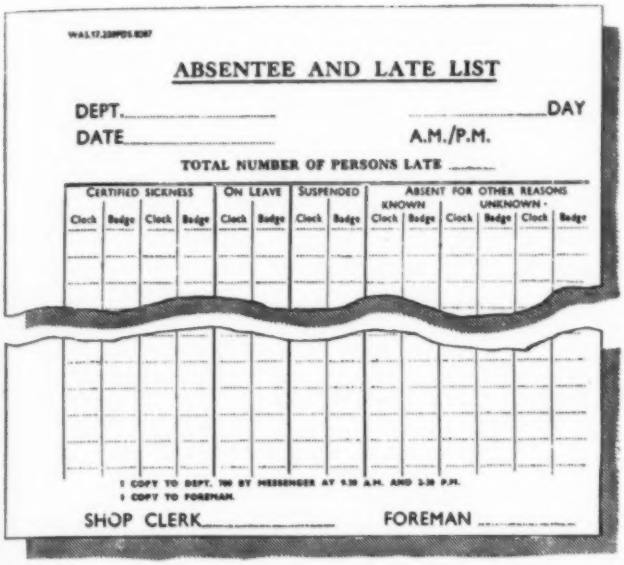
NAME
ADDRESS
Clock No.
Badge No.
Date of Visit
Referred
Follow Up.
Returned to Work.
Referred Prod. Comm.
Referred M.O.L.
Applied for Release M.O.L.
Released M.O.L.
Date of First Absence.
History:
Visitor's Report
Other Investigation
Final Result:
P.W.22

Fig. 4.
The Welfare Visitor's Report: the routine requires four copies

Securing the Information

IN THE factory which is the subject of this report under a managerial instruction the foremen of all departments arrange for the clock cards of those employees who have failed to clock-on to be collected half an hour after the time of commencement of work every morning and afternoon. From the clock cards thus collected, the absences are entered on the Departmental Absence Record Cards (Fig. 2) of employees concerned together with any information which may be available as to the reason for the absence. This information is obtained by the foreman personally from:

1. Medical Certificates which all employees absent through sickness for longer than three days are instructed to send to him.
2. Leave Slips, which he himself authorises (Fig. 3).
3. Welfare Visitor's Report of which he receives a copy (Fig.4).



ABSENTEE AND LATE LIST

DEPT. ..... DAY

DATE ..... A.M./P.M.

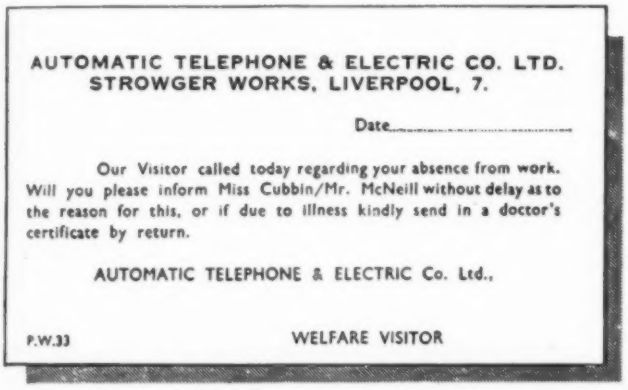
TOTAL NUMBER OF PERSONS LATE .....

CERTIFIED SICKNESS				ON LEAVE		SUSPENDED		ABSENT FOR OTHER REASONS				
								KNOWN		UNKNOWN		
Clock	Badge	Clock	Badge	Clock	Badge	Clock	Badge	Clock	Badge	Clock	Badge	

1 COPY TO DEPT. 7.30 BY MESSENGER AT 9.30 A.M. AND 2.30 P.M.
1 COPY TO FOREMAN.

SHOP CLERK ..... FOREMAN .....

Fig. 5.
The Absentee List: forwarded from each department to Central Record Office



AUTOMATIC TELEPHONE & ELECTRIC CO. LTD.
STROWGER WORKS, LIVERPOOL, 7.

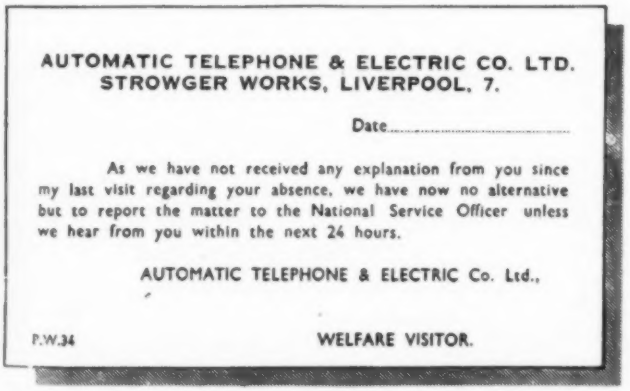
Date .....

Our Visitor called today regarding your absence from work. Will you please inform Miss Cubbin/Mr. McNeill without delay as to the reason for this, or if due to illness kindly send in a doctor's certificate by return.

AUTOMATIC TELEPHONE & ELECTRIC Co. Ltd.,

P.W.33 WELFARE VISITOR

Fig. 7.
The Welfare Visitor's Card No. 1



AUTOMATIC TELEPHONE & ELECTRIC CO. LTD.
STROWGER WORKS, LIVERPOOL, 7.

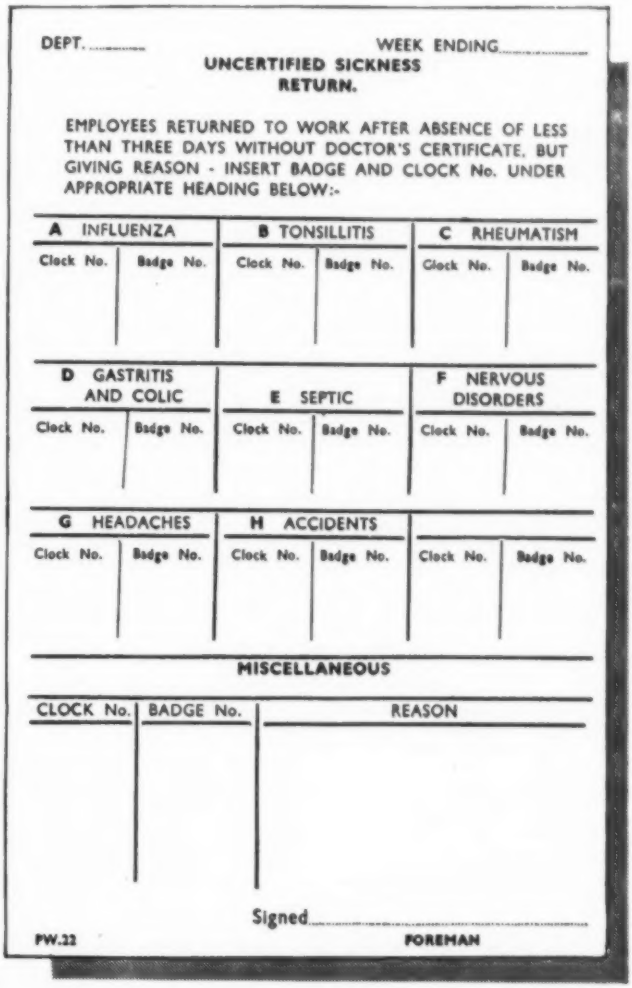
Date .....

As we have not received any explanation from you since my last visit regarding your absence, we have now no alternative but to report the matter to the National Service Officer unless we hear from you within the next 24 hours.

AUTOMATIC TELEPHONE & ELECTRIC Co. Ltd.,

P.W.34 WELFARE VISITOR.

Fig. 8.
The Welfare Visitor's Card No. 2



DEPT. ..... WEEK ENDING .....

UNCERTIFIED SICKNESS RETURN.

EMPLOYEES RETURNED TO WORK AFTER ABSENCE OF LESS THAN THREE DAYS WITHOUT DOCTOR'S CERTIFICATE, BUT GIVING REASON - INSERT BADGE AND CLOCK No. UNDER APPROPRIATE HEADING BELOW:-

A INFLUENZA		B TONSILLITIS		C RHEUMATISM	
Clock No.	Badge No.	Clock No.	Badge No.	Clock No.	Badge No.

D GASTRITIS AND COLIC		E SEPTIC		F NERVOUS DISORDERS	
Clock No.	Badge No.	Clock No.	Badge No.	Clock No.	Badge No.

G HEADACHES		H ACCIDENTS			
Clock No.	Badge No.	Clock No.	Badge No.	Clock No.	Badge No.

MISCELLANEOUS

CLOCK No.	BADGE No.	REASON

Signed .....

PW.22 FOREMAN

Fig. 6.
The form for recording weekly employees returning to work; absence of less than three days

The Foreman's Absence Record Cards are filed by clock number, in each department under the following five headings: (*a*) Present. (*b*) Certified Sick. (*c*) Leave. (*d*) Uncertified Absence. (*e*) For Enquiry.

An Absentee List (Fig. 5) is then compiled from these and forwarded to the Central Recording Office each morning and afternoon. On it the three categories of absence are entered in separate columns. Doctors' certificates and copies of leave slips are attached to it, so that the reason for the employee's absence can be entered on the Central Record Card filed in the Central Recording Office.

Uncertified Absence is dealt with as follows:

To obtain the reason for an absence of less than three days, the foreman personally interviews the employee on the latter's return to the department. This reason for absence is entered on the Departmental Absence Record Card and also on a Weekly Return (Fig. 6), which is forwarded to the Central Recording Office for the data to be transferred to Central Record Card.

Where the absence lasts more than three days without either a doctor's certificate or other explanation being received from the absentee, the welfare visitor is instructed to obtain the information which will also enable the foreman to re-adjust the work or work-people in his department, so that the absence causes the minimum of interruption to production.

Should the welfare visitor (a state registered nurse) be unable to get in touch with the absentee at his or her home, she leaves Card 1 (Fig. 7). If the direction which this contains is not complied with, she calls again three days later. If still unable to establish personal contact she leaves Card 2 (Fig. 8).

The welfare visitor writes out a report form covering every case which she visits, and the original, together with copies for the Central Recording Office, Labour and Welfare Departments and foreman, as above mentioned, are sent to the medical officer. Before routing the copies on to the departments concerned the medical officer obliterates from them any confidential information which may concern him alone.

The Record Card

ALL ABSENCES from work are recorded both collectively and individually under three headings and circulated morning and afternoon:

(1) UNCERTIFIED ABSENCE (eventually covered by employees' stated reasons on return to work).

(2) CERTIFIED SICKNESS (covered by a doctor's note).

(3) LEAVE (covered by a Foreman's Leave Slip).

Absences from the night shift are

NAME	SEX	M.S.	DATE OF BIRTH	JOINED FIRM	DATE LEFT	REASON	CLOCK Nº	BADGE Nº

YEAR	MTH.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	SICK	LEAVE	UNCERTIFIED	TOTAL

NOTES

Fig. 9.
The Absence Record Card: front

notified by the night superintendent and are similarly summated and circulated the same morning.

As soon as these figures have been circulated the compilation of individual records by the Central Record Department commences. An Absence Record Card is employed for this purpose, which makes provision for all information likely to be of use in any detailed statistical study to be undertaken. (Fig. 9, front; Fig. 10, reverse.)

The front of the card has provision for full details such as the age and sex of the employee, whether married or single, length of service with the company and a complete record of all absences with reasons for and control of the absences. The back of the card covers follow-up procedure and has provisions for statistical records.

1. FOLLOW-UP PROCEDURE: The following-up procedure is determined by the case history as recorded on the front of the card and the action to be taken is decided by the working liaison between the medical, welfare and labour departments. The resultant decision is indicated by the attachment of signals of different colours above the appropriate squares at the head of the card.

2. STATISTICAL RECORDS: This section is divided into three headings:

(1) Certified Sick. (2) Leave. (3) Uncertified Absence.

Fig. 10.
The Absence Record Card: reverse

	BAD TIME-KEEPER	REVIEW	HABITUAL	INTERVIEW	PRODUCTION COMMITTEE	NATIONAL SERVICE OFFICER	

	YEAR	1	2	3	4	5	6	7	8	9	10	11	12		42	43	44	45	46
CERTIFIED																			
	YEAR	1	2	3	4	5	6	7	8	9	10	11	12		L	L	L	L	L
LEAVE																			
	YEAR	1	2	3	4	5	6	7	8	9	10	11	12		U	U	U	U	U
UNCERTIFIED																			

A. T. & E. Co. Ltd. TOTAL

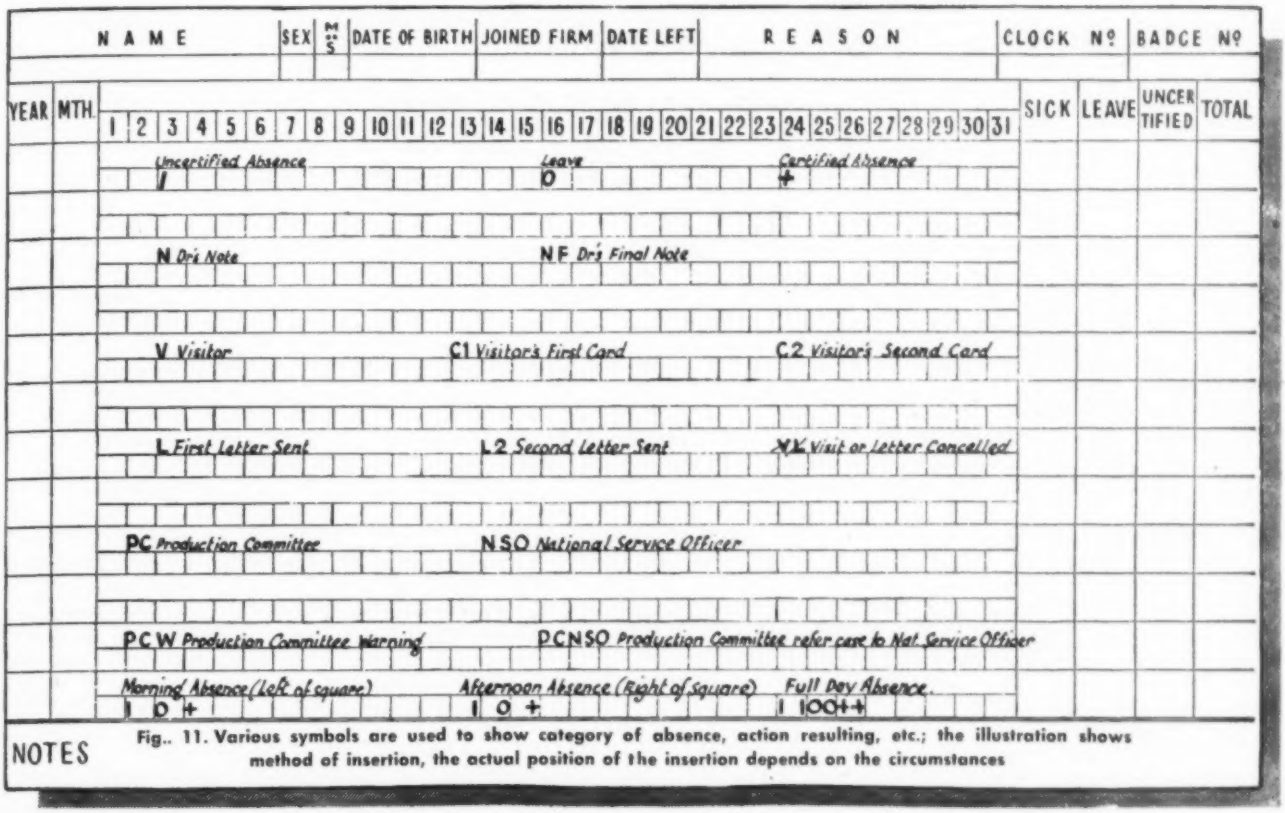


Fig.. 11. Various symbols are used to show category of absence, action resulting, etc.; the illustration shows method of insertion, the actual position of the insertion depends on the circumstances

These three headings are subdivided into 12 groups each of which serves for the statistical recording of the commonly advanced reasons for absence. Additional space has been provided to accommodate further groups should such be found necessary. The information to complete these columns is obtained from the reasons recorded on the front of the card explaining all of the absences. It is proposed to compute the statistical information annually and a column has been allocated to each group accordingly. Dependent upon the frequency of absences the card has a life up to a maximum of five years.

As examples, the following are cited, in the case of:

(a) Certified Sickness. The columns represent groups of ailments, *e.g.:* (1) Influenza and Colds. (2) Gastritis. (3) Rheumatism. (4) Accidents, etc.

(b) Leave. The columns represent groups of common reasons where leave is granted, e.g.: (1) Husband on Leave. (2) To be married. (3) Overslept. (4) Transport, etc.

Explanation of Symbols

ABSENCE is computed in terms of half days. In the case of a morning absence, the symbol is placed on the left-hand side of the appropriate square. Absence in the afternoon is placed on the right. A full day's absence, therefore, is indicated by two symbols in one square.

The symbols employed for the three categories of absence are:

/ Uncertified Absence.
\+ Certified Sickness.
O Leave.

The symbols are shown here in this order because in the majority of cases the first absence is unknown, and would be denoted by a stroke. As soon as information is received indicating the correct category of the absence, the symbol can be converted into the appropriate + or O without defacing the card. Red ink is used for day shift and blue ink for the night shift. Further symbols are used to convey information relating to absence. (Fig. 11.) These are placed in the blank space provided for the night shift. Further symbols which may apply, are as follows:

N. That doctor's note has been received.

NF. That doctor's final note has been received.

V. That visit has been made by welfare visitor.

V That visit has been cancelled owing to person returning to work or for some similar reason rendering visit unnecessary.

C.1. That Card 1 was left by visitor, who reported being unable to establish personal contact.

C.2. That Card 2 was left by visitor on second visit.

L.1. & L.2. That Letters L.1. and L.2. have been sent in lieu of visits of welfare visitor. Used where visitor is not employed.

PC. That absentee has been referred to Production Committee under Essential Works Order Procedure.

NSO. That absentee having failed to comply with less stringent directions, has been reported to the National Service Officer.

PCW. That absentee has been warned by the Production Committee.

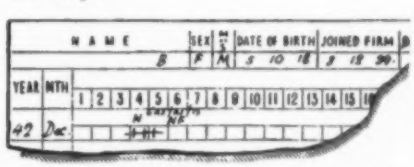
PC.NSO. That absentee has been reported, on recommendation of Production Committee, to National Service Officer.

*Inserted after consideration of absence due to sickness at anticipated date of return; also to define the period of leave granted.

The reasons for absence are written in the blank space provided above the period of absence, abbreviations being used where possible, e.g., RHEU — Rheumatism; TONS — Tonsilitis; APPL. REL.—Applying for Release. In the following sections, cards show the use of the foregoing symbols.

Examples of Individual Cards

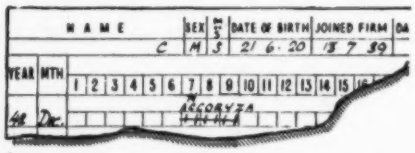
CERTIFIED Absence under Three Days:



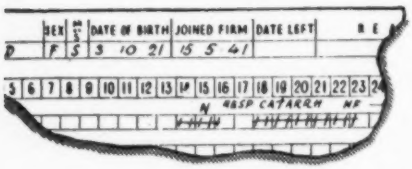
This card indicates that Mrs. B. was absent on December 4 and the morning of the fifth. The reason "gastritis," has been placed over the squares for those dates.

This information was obtained from two doctor's notes dated December 4 and 6 respectively, and the symbols "N" (Note) and "NF" (Final Note) have been appropriately placed.

CERTIFIED Absence—Three days and over:



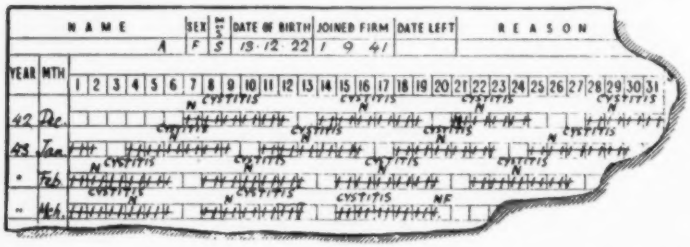
Example No. 1. This card indicates that Mr. C. was absent from the seventh to ninth of December inclusive, and the reason, "acute coryza," has been placed above the appropriate date squares, together with the symbol "N."



Example No. 2. This card indicates that Miss D. was absent from January 14 to the morning of January 23. The reason, "respiratory catarrh" and the symbols "N" and "NF" have been placed on the card, thus covering the absence.

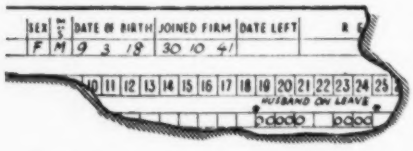
It will be noted that a week-end is clearly shown by the lack of a cross symbol on the afternoon of the 16th and the day of the 17th.

Example No. 3. This card indicates that Miss A. was absent from December 7, 1942, to March 20, 1943. The reason was "cystitis" the symbol "N" indicating that doctor's notes were regularly received has been inserted over the appropriate squares on the card, thus covering the absence completely.



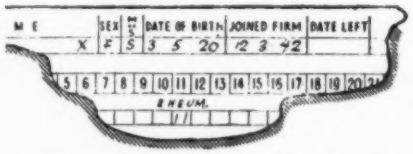
ABSENCE with Leave:

This card indicates that Mrs. E. was absent with leave from February 19 to 24.



To obtain leave, the employee must ask permission from the foreman, who when granting it, gives the employee a Leave Slip which states the period granted and the reason. A copy of this slip is sent to the Central Recording Department where the information is placed on the individual's card above the appropriate date squares. The period allowed is indicated by the insertion of two asterisks on the card.

UNCERTIFIED Absence under Three Days:



This card indicates that Miss X. was absent on March 11, 1943, and the reason for the absence "rheumatism" has been placed above the square for that date.

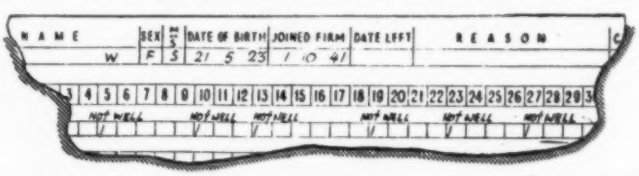
This information was obtained by the foreman of the department in which the person works by asking the returned employee to indicate on the "Uncertified Sickness Return Form" the reason for the absence.

HABITUAL Uncertified Absence:

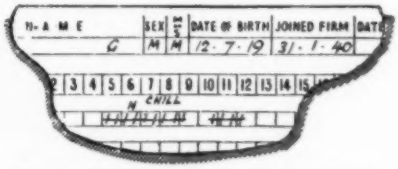
This card indicates that Miss W. was absent for six half-days during the month of January, and the reason stated on each occasion was "not well." It is a routine of the Central Recording Department that absences on more than four occasions in one month be signalled for the attention of the medical officer if due to minor sickness. If the employee advances such reasons as "overslept," "transport difficulties," or "unhappy at work," they are brought to the attention of the welfare and labour departments. In the case of "headaches" repeatedly given as a reason for absence, the medical officer would make an ocular examination in case refractive errors rectifiable by glasses are present, or the conditions are the result of bad illumination at the work-bench, in which case the attention of the management is directed to the matter.

CERTIFIED Absence, Uncertified Absence and Leave:

This card indicates that Miss F. was absent for a minor illness, granted leave and also absent for an attack of "acute tonsilitis" during the period November to March. The sickness absence was certified by a doctor's note on February 22 and by a final doctor's note on February 27, when Miss F. resumed work. The reasons for all three absences have been placed above the respective date squares.

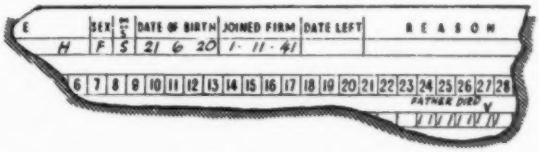


CERTIFIED Sickness of Employee on Night Shift:



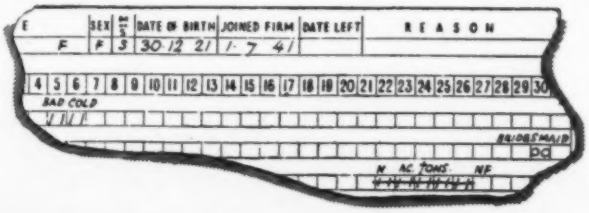
In order to distinguish absence on the night shift from the day shift, the symbols for the former are shown in blue ink. This card indicates that Mr. G. was absent from the night shift from January 5 to 12, for certified sickness—"chill"—and the date of the note is indicated on the card.

UNCERTIFIED Absence over Three Days, with Visitor establishing contact:



As the company's regulations require a note to be returned by employees after an absence of three days, the following routine becomes operative if no note is received:

The recording clerk places the symbol V above the square of the fourth day of unknown absence, thus indicating that a visit is to be made by the welfare visitor (a state registered nurse) on the fifth day. A coloured signal is then attached to the card, which is placed in the welfare visitor's box. The visitor, after ascertaining on the morning of the fifth day that the employee has not returned to work, obtains the address from the labour department and visits the employee, entering the result of her visit on a Report Form. This report is reviewed by the medi-



cal officer, who at his discretion strikes out anything of a private or confidential character before routing copies to the Central Recording Department, welfare and labour departments, and the foreman of the employee's department. Thus a full working liaison is established between the departments concerned, and with a full knowledge of all relevant facts before them, they are able to handle individual cases appropriately. Representatives of the medical, welfare and labour departments meet at regular intervals to review the facts recorded on employee's cards.

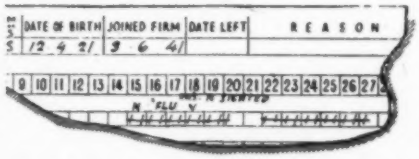
The card indicates that Miss H. was absent from November 24 to 30. As no information was received after three days, the symbol V was placed over the square of the fourth day and a visit was made on the fifth day.

The visitor's report explained the cause of the absence, which in accordance with the above described routine was received by the Central Recording Department, who extracted the information and entered it above the appropriate period of absence on the Record Card.

UNCERTIFIED Absence over three days, subsequently converted to Certified Sickness:

This card indicates that Miss K. was absent from February 15 to the morning of Friday 27 inclusive.

The data on the record card above the period of absence explain that



no sick note was sent in by the fourth day, that Miss K. was visited on the fifth day and the welfare visitor reported that Miss K. was in bed with "influenza" and that she had a doctor's note dated February 15 certifying "influenza," which she had not sent in.

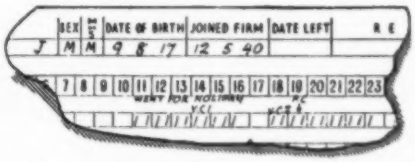
The symbol for Uncertified Absence was therefore converted into the symbol denoting, Certified Sickness, and a summary of the Visitor's Report, viz., "flu," was placed on the card to cover the absence.

UNCERTIFIED Absence over three days, visitor unable to establish contact:

Where the welfare visitor is unable to contact the absentee, Card C.1. is left at the house. This fact is entered by the welfare visitor on her Report Form, and the symbol C.1. is placed by the record clerk over the square of the date of the visit.

Should no information be received within the next two days as to the reason of the absence, under the routine the welfare visitor is again instructed to call two days later, and the symbol V is entered on the record card accordingly. Should the visitor again be unable to contact the absentee, Card C.2. is left and the visitor's report procedure and entry on the record card repeated.

No further visits are made, and if no information has been received by the next day the symbol PC is inserted over the square for that day and the back of the record card is signalled over the heading "Production Committee," and the welfare and labour departments are notified. The absence is still recorded automatically day by day, and the information as to the action taken when received is inserted on the record card over the period of absence.



This card indicates that Mr. J. failed to report the reason for his absence on the fourth day, and was therefore visited on the fifth day. No reply was given from his home, and the welfare visitor left Card C.1. in the letter box. As still no reply was received by the seventh day the welfare visitor again called at his home on the ninth day—Sunday intervening—and in the absence of a reply left Card C.2.

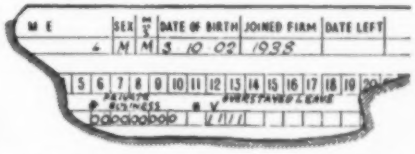
As still no reply was to hand the following day the case was referred to the Production Committee via the welfare and labour departments. The reason for this absence was in due course furnished by the labour department to the Central Recording Department when the case was settled, and the reason for the absence was accordingly entered in the space over the period of absence.

THE CONTINUOUS Review of Prolonged Absence by Asterisk Indications:

The system of indicating the probable date of resumption of work by placing an asterisk over the square of a particular date is used in all cases of certified sickness absence. The precise placing of the asterisk is determined after sympathetic consideration of the cause of absence by the medical, welfare and labour departments. It is also of great value in cases where absence is likely to be prolonged, *e.g.*, "fractured leg," "tuberculosis," etc., as it enables the welfare department to make an offer of help such as convalescent treatment and it also enables the labour department to inform the foreman of the absent employee's department of the probability of prolonged absence, so that in the interests of production, the foreman can make alternative arrangements.

Moreover, since through the recording on the record card the case is under periodic review, early arrangement can be made for the rehabilitation of employees where this is possible.

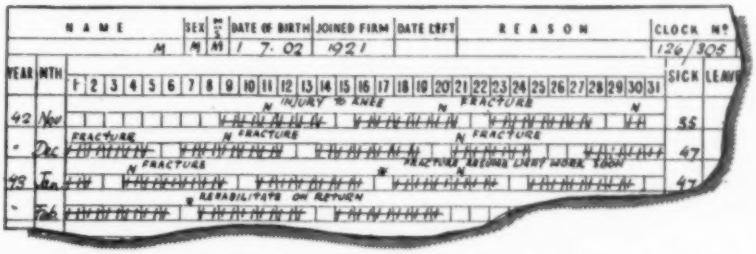
Example 1. Uncertified Absence after leave has been granted.



This card indicates that Mr. L. applied for leave on grounds of private business, and was granted same from the 6th to 11th December, which was indicated on his record card by an asterisk.

The routine operating is that a visit is signalled to be made if the date underneath the second asterisk is exceeded. In this case, since Mr. L. did not return on the 12th day, the visitor called on the 13th day, and her report showed that Mr. L. admitted that he had overstayed his leave and stated that he would return the following day, which he did.

Example 2. Prolonged Absence due to Accident.



The card indicates that Mr. M. suffered an injury to his knee on November 9, 1942, which was subsequently confirmed to be a fracture. It was anticipated that he would return by January 17. When he did not return it was again anticipated that he would be able to return about February 7. On not returning by that date a further period of a fortnight was "asterisked," and a decision was reached to rehabilitate him on his return.

This card shows clearly the benefit of forecasting the probable date of resumption, as in cases of this character a constant review is maintained.

UNCERTIFIED Absence without reasonable excuse:

The disciplinary procedure recommended under the Essential Works Order is adopted for such cases. When brought before the production committee the offenders, in most instances, receive a warning that their future conduct will be watched and if there should be no improvement, informed that they will be reported to the National Service Officer for direction. The production committee's decision is sent to the Central Record-

ing Department, where the following routine is operated:

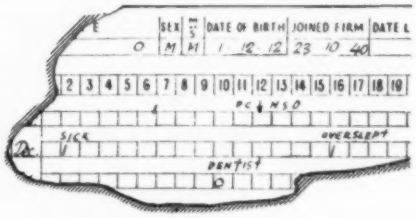
An asterisk is placed over the square covering the date of the offender's appearance at the production committee, and the symbol "PCW" (production committee warning) written alongside. Green and grey signals are then clipped on the card covering the squares denoting "Production Committee" and "Habitual Absentee" respectively.

Should a case have been referred to the National Service Officer, the card would be recorded "PC.NSO," and a purple signal is clipped above the appropriate square.

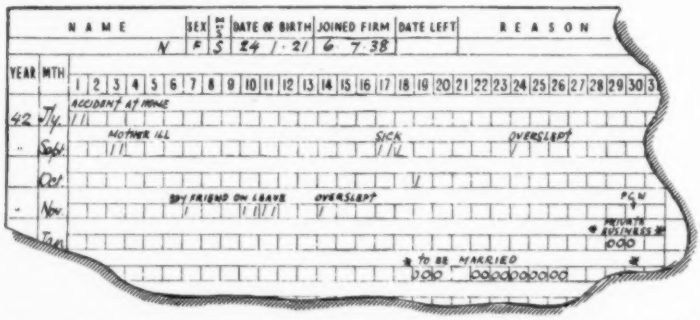
By this method the cards so signalled clearly stand out amongst the many thousands of filed cards and the labour department, on enquiry to the Central Record Department, can easily be furnished with the record of the offender at any time in the future.

Example 1. This card indicates that Miss N. was warned by the Production Committee on November 30, 1942, following uncertified absence of six half days during the month. The record has been inserted for reference purposes. It is interesting to note that since the production committee warning, Miss N. has only been absent twice in four months—once for a period of a day and a half on private business, and the second time in March, in order to get married; she applied for and was granted leave in both cases.

The salutary effect of the production committee warning is typical.



Example 2. This card indicates that Mr. O. was reported to the National Service Officer on the 12th October, 1942, actually prior to the inauguration of the card system. The fact, however, is recorded. His absence was a combination of habitual absenteeism and bad time-keeping.



card system was only inaugurated in the first week in November, but from a system of department sheets which preceded the cards, the employee's practical help. (*c*) Dealing with recalcitrant employee under the procedure defined by the Essential Works Order.

The signals which are attached to the Absence Record Cards in the Central Record Department for follow-up purposes are as follows:

Red. To indicate uncertified absence of three days and to identify cases to be visited by the welfare visitor.

Blue. Is substituted for red immediately information is received that the uncertified absence is due to sickness. It is also attached, as a matter of routine, to the cards of the employees absent on the grounds of certified sickness.

Yellow. To indicate that an uncertified sickness is to be reviewed in the light of facts to be ascertained by interview or reference to time-keeping record. The position in which the signal is placed on the card determines the nature of the action to be taken or the information required for consideration.

Grey. To indicate that an employee's absences are habitual. The signal is placed over the square printed thus—HABITUAL.

Green. To indicate that the employee's absences warrant referring the individual to the production committee.

Purple. To indicate that the production committee have recommended that an individual should be reported to the National Service Officer.

Brown. To indicate that information of a confidential medical character in regard to the employee associated with the card reposes in a special file maintained by the medical officer personally.

The vari-coloured signals located in pre-determined positions at the head of the card facilitate ready extraction, for review, of cases with similar characteristics, e.g., "Referred to Production Committee" and the straightforward system of filing the cards numerically by clock number and department enables an individual employee's card to be quickly located among the many thousands filed, for the insertion of the information thereon as it may be received.

It will be observed that the Central Recording System described in the preceding pages standardises on the half-day's absence as the minimum to be recorded, but that little reference has so far been made to bad time-keeping. In point of fact, however, unpunctuality is recorded in employee's departments under the same routine which is followed for recording absences. The back of the Department Absence Card is used and there is accommodation for 30 incidents of lateness. Except under exceptional conditions, such as extremely bad

The card does not serve to keep any record of the latter, but the fact was ascertained from his departmental record.

Medical Welfare and Labour Cooperation

IN THE largest of the factories in the group under review a committee of five persons has been formed, comprising the medical officer, the personnel and welfare manager, the labour manager, and the lady welfare supervisor. This committee normally meets weekly and holds a special meeting to review progress once a month.

The cases of employees absent come up for discussion at the weekly meetings and are rapidly disposed of for appropriate action by the medical, welfare and labour departments.

In all such cases the Employees Absence Record Cards from the Central Record Department's files are tabled to furnish a complete history of each individual's absences.

For convenience in identifying the cases to be dealt with, a simple system of coloured signals is employed. These signals are firmly attached to the cards over the squares printed with an indication of certain standard courses of action which have been predetermined to be satisfactory to cover any known contingency. When a course of action has been decided upon by the committee, the appropriate signals are attached to the card and the member of the committee responsible for the action to be taken makes a note of the particulars.

As typical examples of courses of action to be taken the following are cited:

Medical: (1) Probable date of return of absentee is annotated by an asterisk symbol. (2) Absentee's doctor is contacted by telephone or by letter. (3) Absentee's normal working conditions are investigated. (4) Rehabilitation is arranged, *i.e.*, a person possibly unfit for employment on customary work may be capable and willing to resume work in some other capacity. The change—permanent or temporary—is effected.

Welfare and Labour: (*a*) Offering and arranging for convalescent treatment where suggested by medical officer. (*b*) Offering advice and assistance where employee may need guidance or

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weather or poor transport facilities, unpunctuality is regarded as being a matter of individual temperament to be handled by persuasive or disciplinary measures. These are the responsibility of the departmental foremen and are accordingly left to them to apply at discretion. The departmental and general trend of unpunctuality is reviewed by the management from the department returns (which are included at the head of the absentee list), and the total presented each morning and afternoon. Any undue increases obviously call for enquiry.

The committee established to review absences always has access to an individual's lateness record. The fact that the person may be a bad time-keeper is indicated on the card by the attachment of the yellow signal over the first square on the back of the Absence Record Card and an observation such as "Frequently late Saturdays" can be added in the space reserved for "Notes" on the front of the card. Thus a person's late record is constantly under observation without involving any extraordinary clerical effort. In this latter respect in one of the smaller factories operating the Central Recording System, the management decided to have a central record of minutes lost due to lateness, and the foremen were obliged to furnish this information which was then placed as a figure of "minutes lost" on the small squares on the Absence Record Card. This is a refinement of the system and exemplifies its flexibility. It was not included at the inception of the system as "lateness" was not regarded as a major cause of lost production; a survey revealed that over a period of one month, time lost from the unpunctuality of hourly-paid workers was negligible.

Due to the considerable amount of detail and paper work entailed, it may be thought that the system is costly to operate. That this is not so can be readily proved. The whole of the information for central record purposes is obtained by the foreman at the customary interrogation of employees on returning to work after a period of absence, or from medical notes, visitor's reports, or messages delivered by fellow-workers, etc. It then takes but a few minutes of the foreman's or shop clerk's time each morning and afternoon to comply with the routine defined by the management. The principle of placing the responsibility for interviewing employees returning to work on to the department foreman is sound, as it ensures that the employee can resume work with the minimum delay, and also that the work of the personnel of the medical, welfare and labour departments is confined only to the cases with which they are particularly concerned.

The work of transferring the information to the Central Record Cards is simply organised and a female clerk is able to handle between 200 and 300 cases of absence in an hour. One clerk can record more than 2,000 absences.

Viewed from a strictly material viewpoint it is agreed that a certain number of cards, forms, etc., are used. It is accepted, however, that a very considerable amount of paper must be consumed in the recording, checking and other clerical work indispensable to the efficient operation of a factory and the additional amount used as a result of the introduction of an Absence Control System is comparatively very small.

Considerable detail has been given concerning the system for recording reasons for absence because only a full description accompanied by examples of every type can show convincingly that the scheme is attractive in outline, is flexible and proven in practice by extensive application.

Further, it can be seen that a mass of data has been compiled which allows for a full statistical survey not only of sickness-absence but absence for all other reasons during the year 1943. The length of the present report precludes its inclusion here, it will therefore be presented in the near future as a separate report.

Conclusion

THE TEAM work essential for an active industrial health service has, it is hoped, been clearly illustrated and so has the fact that the control of absence required both for national and individual managerial purposes is facilitated by the application of the system. Finally, there is no doubt that its use makes possible the promotion of welfare and industrial health, in the truest sense of the words, throughout the industrial unit.

The government is actively concerning itself with the rehabilitation and re-entry into industry of the war-disabled worker. It must be pointed out, however, that there are two aspects to be considered; one concerned with the job to be done by the worker and the other relating to his physical or mental health. The Ministry of Labour officials are competent to deal with the former and the person's own doctor is qualified to handle the latter; but each, capable though he may be in his own sphere, is only able to cover one-half of the problem. The result falls very far short as the two aspects —the industrial and medical—are so closely inter-connected that each case must be administered as a self-complete whole. Under the present arrangement the essential liaison between the directing Ministry and the person's own doctor is non-existent.

Obviously the person best qualified to assist this liaison which urgently requires establishment is the medical officer of the industrial health service, as he has specialised medical skill combined with the requisite knowledge of industrial conditions.

To sum up, it is firmly believed that industry will not pay for the recording of sickness-absence from work if this is done solely for the purpose of statistical enquiry by an outside body. It must prove its worth as an actual economic factor in the better running of the business and therefore requires a method of recording which by incorporating a record of all absences will allow full managerial, welfare, labour and medical liaison.

The recording of absence merely under two headings such as the "voluntary" and "involuntary" used by the Ministry of Fuel and Power, or those of "reasonable" and "unreasonable" used by the Ministry of Labour is not nearly sufficient to meet the needs previously mentioned. The information obtained under two headings such as "voluntary" and "involuntary" may prove sufficient for certain restricted purposes when applied merely as a stop-gap under the stress of war but a sound, constructive system which will be really valuable to postwar industry must cover every absence and detail an exact reason for it.

To support this statement with but one example, the absence of a body of employees as a result of a certain type of illness might be considered unreasonable when it is a question of considering the action of those individuals in staying away from their work, but it might be considered extremely reasonable by the medical officer of an industrial health service.

With exact information he can immediately apply remedial action to the cause of the illness and in consequence restrict its ill-effects, to the physical benefit of the workers and the economic benefit of the organisation employing them. From this strictly economic viewpoint of industrial management it must also be remembered that when absence is to be recorded, it involves no more labour and no more cost to record in detail the reason for the absence than to use categories of absence which do not allow of further enquiry or comparison between industries.

Upon the application of a national scheme of a type envisaged in the report by Sir William Beveridge, absence from work will become a national problem, for the funds will not stand the payment of sickness-benefit unless a method is evolved to check the good faith of every individual absence. This can only be done in a manner fair to the person in benefit and to the taxpayers contributing firstly, by examining the record of the individual's absences and the reasons advanced for them, and secondly, by a review of the past absence record over a period of time. Surely it is only in this way that an equitable judgment can be given.

DR. H. E. EARNHART, Swift & Company medical director, in *Trans. 32nd National Safety Congress:* "The common cold remains the No. 1 seasonal offender as a cause of lost time for illness, but it seems there is not a great deal that can be done about it. We frequently think in terms of sending all employees with beginning symptoms of coryza off the job, but I doubt if any industrial physician has nerve enough to advocate such practice at this time. Management would not be in a very receptive mood."

INDUSTRIAL HEALTH and DISEASE

Sick Absenteeism and Medical Certificates

—For Industrial Workers—

THE present critical need of manpower for increased war production calls for more effort to be directed toward reduction of unnecessary absenteeism and labor turnover. Among the many factors bearing on this problem is the relation between private physicians and industrial physicians. A statement recently prepared on this subject by the Safety and Security Division, Office of the Chief of Ordnance, Army Service Forces, directed toward industrial physicians in Ordnance plants, has been called to our attention because of its applicability to all plant physicians and cooperating private physicians.

From *Industrial Hygiene News Letter* (December, 1944), issued by The Industrial Hygiene Division, U. S. Public Health Service.

This statement says in part "To minimize absenteeism alleged to sickness and terminations attributed to ill health, the closest possible cooperation should be maintained between plant physicians and private physicians in nearby communities. Private physicians often have no accurate information concerning health hazards associated with their patients' jobs in Ordnance plants and the generally satisfactory medical and engineering measures taken for their control, and are often at a loss as to how to advise their patients regarding complaints related to work. Likewise, private physicians are not generally aware of the information concerning their patients, available from the plant physician in connection with past examinations, blood tests, x-ray findings, and other diagnostic aids."

The related problem of medical certification of illness has also been brought to our attention as a matter that should be considered by the State Industrial Hygiene Divisions. This subject was discussed in an editorial entitled, "Medical Certificates and War Production," published in the *Journal of the American Medical Association*, November 11, 1944. The private physician's responsibility is presented in this editorial as follows: "The government and its contracting agents customarily require medical certificates to cover an absenteeism alleged to illness or a labor termination attributed to reasons of health. The medical profession is then put under pressure by thoughtless persons who see little harm in collecting disability benefits or in obtaining better jobs on pretext of illness. They fail to see the cumulative results of hundreds of thousands of such acts on critical war production. Responsibility rests squarely on the physician to act as prosecutor, defense attorney and judge before issuing such a certificate. He fails himself, his profession and the war effort if certificates are issued without due cause."

Traditionally, the doctor has been called upon to champion and be an advocate of his patient. In the main, the patient has been the one who employed him and he has instinctively defended the patient against any or all groups having impersonal interests. The doctor is called upon to certify to this and to that. He must certify birth and death; the occurrence of contagious disease; the health of food handlers; and the freedom from disease of candidates for marriage. Health and accident policies depend to an appreciable extent on the knowledge and integrity of practicing physicians. Compensation statutes require medical judgments as bases to support legal judgments. One easily understands why the busy doctor labels all certification a "chore." It is true that to refuse to sign any statement his patient requests, the physician risks an irate individual, but one wonders what degree of confidence and respect the patient will have in his doctor if the latter unwittingly or not, falls in with such a procedure to circumvent common honesty.

The tendency of some workers is to indict fumes, gases, dust, etc., for real or alleged ill health. Actually, few unskilled workers know what if any occupational hazards exist in their working environment. Such a worker, in the role of a patient, may influence the family doctor to a most astounding and untenable diagnosis. It seems opportune to urge that physicians protect themselves in this respect by using confirmatory sources of information.

State and local industrial hygiene divisions can give the private physician information on the specific environmental health conditions in a particular plant on request, when there is any question concerning the possibility of illness being incurred on the job.

They can also assist industries in developing a standard form of certificate for physicians to use in making reports and can bring this subject to the attention of medical societies.

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LESTER M. PETRIE, M.D.,
Director, Industrial Hygiene Service,
State of Georgia Department of Public Health, Atlanta

OUR purpose in the over-all field of industrial health is the same as it is in the field of industrial safety, i.e., to keep as many men working at as many machines as many days as possible. We think in terms of human values, reduced human suffering from preventable diseases, fewer and less serious accidents, improved worker morale; as well as in terms of economic values, increased productive capacity per man, reduced compensation insurance costs, fewer machines idle from absenteeism, less labor turnover, reduced spoilage of material by green workers and the like; and also, in these days of war, we think in terms of weapons and supplies produced in sufficient quantities and on time instead of too little and too late.

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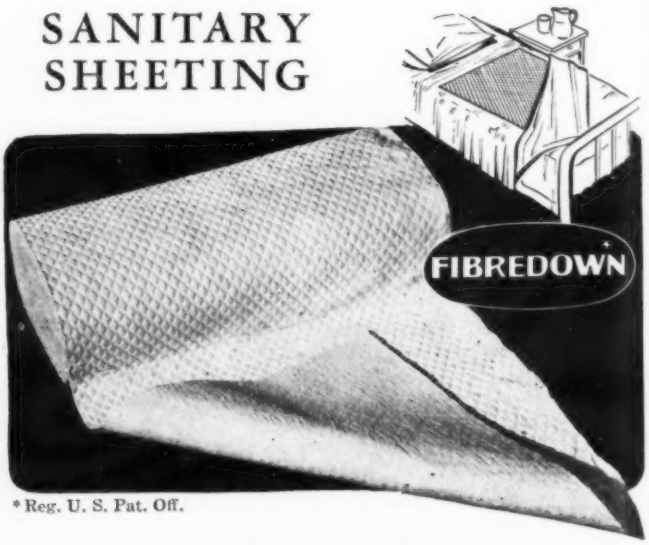

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Two Approaches

THERE are two approaches in the determination of health hazards in industrial occupations, first, through study of the individuals exposed to risk, and second, through study of the working environments. The study of the individuals is primarily a function of the doctors, dentists and nurses, while the environmental study belongs principally to the engineers and chemists. However, the problems are so complex, questions of cause and effect are so interrelated, that each professional worker must have a speaking acquaintance with and a practical grasp of the knowledge and viewpoint of his co-workers in the related professional fields. The doctors and nurses must periodically inspect the plant to have an understanding of the industrial processes and the toxic environmental influences capable of producing disease. The engineers and chemists must have some knowledge of the effects on human physiology of the dusts, gases, vapors, fumes, mists, chemicals, emanations and the like with which they must deal.

A great many other personnel are also called into the picture, such as technicians, clerks, first aid crews, labor management committees on health and safety, welfare workers, and the like.

All must work together.

Study of Exposed Individuals

LET US examine these two approaches to the determination of health hazards separately. In the study of individuals exposed to risk of injury or illness in industry there are certain minimum requirements which must be met or the desired results cannot be obtained. These requirements pertain to procedure, personnel, facilities, and records.

MEDICAL EXAMINATIONS: Physical examinations by the physician are absolutely indispensable. These must be done routinely on all employees on a pre-placement basis. Without knowledge of an individual's physical condition prior to his exposure to risks in industry, it is impossible to evaluate the effects of the hazards peculiar to his industrial environment. The initial examination should include a blood test for syphilis, and a chest x-ray examination for pulmonary tuberculosis.

The examinations which must be done may be classified as follows:

(A) Pre-placement examination of all employees.

(B) Periodic re-examination of all employees. Annual or bi-annual. Workers with unusual responsibilities such as crane men and hoist men should be examined every six months.

(C) Special examinations at more frequent specified intervals (monthly, bi-weekly) for employees exposed to special hazards such as toxic chemicals, fumes, mists, dusts, radioactive emanations, and the like. These examinations include special laboratory tests.

(D) Examination of all employees following illness.

CLASSIFICATION OF WORKERS: Following each physical examination, the individual should be classified by the physician in one of a minimum of three groups:

(A) Physically fit for any employment.

(B) Partial physical deficiency. Acceptable for types of employment mutually agreed upon by the physician, the employment office, labor management war production drive committee, department head, etc.

(C) Severe physical deficiency. Not acceptable for any employment because of unusual hazard to self and/or fellow employees.

The physician reports his classification to the employment office. He does not report specific diagnosis. These remain confidential between him and his patient. They are interested in the man's employability. One concern I know of reports to the employment office on red, yellow or green 3x5 cards. Use of the colors is patterned after traffic lights. Individuals in Class A, fit for any types of employment, are reported on green cards; individuals in Class B, fit for limited

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types of employment, are reported on yellow cards, and individuals in Class C, who are not acceptable for any employment, are reported on red cards. The employment office knows that all those on green cards have the green light physically for placement anywhere. Those on the yellow cards should be placed with caution after conference and special agreement. The only red cards which remain on the employment rolls represent old employees to whom the company is obligated. Individuals with yellow or red cards cannot be transferred from one occupation or department to another without special permission of the medical department in each instance.

MEDICAL JOB ANALYSIS: Another necessary procedure is medical job analyses by the physician in cooperation with the employment office, department heads, etc., of all occupations in the industry. Without this knowledge he cannot intelligently assist the personnel or employment department in proper placement of handicapped workers. There is a wealth of evidence that handicapped workers, suitably placed, tend to make more reliable workers than the so-called physically perfect group. The physician should make periodic plant inspections, at which time he should pay particular attention to the performance of the handicapped workers to assure that they are suitably placed. This problem is becoming increasingly acute with the return of handicapped veterans. Sample job analysis forms are available.[1, 2, 3]

PERSONNEL: The personnel required for medical control vary as to the type and size of the industry, geographical location, hospital and other community facilities available, and many other factors. In general physicians, dentists, nurses, and assistants such as technicians and clerks are required. The chief physician or medical director is the key person. The nurse is the buck private on the front line. The physician who can meet all the 15 standards the American College of Surgeons has set up for the qualified industrial physician or medical director[4] is comparable to Superman. Listen:

1. He should be a graduate of an accredited medical school and licensed to practice in the state or province.

2. He should have at least one year's internship in an accredited hospital.

3. He should have some experience in general practice either prior to or supplemental to his duties at the plant.

4. He should have a general knowledge of industrial relations, including employment methods and problems, transportation, housing, recreation, educational facilities and methods, and employees benefit plans.

5. He should be qualified to determine by examination of employees their physical and mental fitness for work.

6. He should have a knowledge of the ingredients and of the toxic or disease-producing qualities of the materials and processes used in the industrial organization which he serves.

7. He should have knowledge of sanitation, of working conditions, of accident and occupational disease prevention methods, and of preventive health measures in general.

8. He should have a knowledge of the diagnosis and treatment of occupational diseases.

9. He should be competent in the diagnosis and handling of all traumatic lesions which he undertakes to treat.

10. He should be versed in the procedure for follow-up and rehabilitation.

11. He should have a knowledge of workmen's compensation laws.

12. He should have a knowledge of an efficient record system and of statistical methods.

13. He should have an unbiased industrial viewpoint and a confidence inspiring personality.

14. He should realize that his first duty should always be to the workman whom he examines and treats.

15. He should like people.

Nurses, first aid workers, and others working in the medical department are responsible to the physi-

cian. All these who play any part in the handling of patients should work under written standing orders,[5] approved and signed by the medical director. This affords important legal protection to all parties concerned.

FACILITIES: Now as to facilities. Space for physical examinations may be provided in the plant infirmary or dispensary. The infirmary is the most important physical consideration in the organization of a medical service. It has other functions besides providing space for physical examinations. It should be centrally located where it can be reached most conveniently by the greatest number of employees. But it should also if possible be under the same roof as the personnel department so that applicants can receive their physical examinations without coming in contact with production areas of the industry. Sometimes both these conditions cannot be met, and separate physical examination rooms may be provided in the building housing the employment office. In some instances this means duplication of expensive x-ray equipment. In small industries physical examinations are sometimes done in the physician's private office.

Laboratory facilities for blood tests for syphilis, urinalyses, blood counts, and special tests indicated for the special industrial exposures are needed. State health departments and industrial hygiene services and the Division of Industrial Hygiene of the U. S. Public Health Service have much assistance to offer in these problems.[6,7]

RECORDS: The medical records of the industrial medical department have two major functions. First to provide the physician with a complete and up to date record of each individual's medical and occupational history and physical findings. This is to assist the physician in his service to the patient, to help him arrive at the correct diagnoses, and to assist him in forming good judgment as to medical disposition. This first function has to do with the physician-patient relationship, and for this reason these records should be confidential and should remain in the medical department.

The second major function of the industrial medical records is to provide data for statistical analysis of sickness absenteeism. This should be the more important function from the standpoint of industrial management. As the Industrial Hygiene Foundation has insisted for years, even before absenteeism was a headline, the first step in reducing lost time is to keep absenteeism records—audit your absences.

To avoid inconsistencies in the data it is necessary to define what is meant by absenteeism. The definition of the Bureau of Labor Statistics is recommended: "Absenteeism is the failure of workers to report on the job when they are scheduled to work. It is a broad term which is applied to time lost because sickness or accident prevents a worker from being on the job, as well as unauthorized time away from the job for other reasons. Workers who quit without notice are also counted as absentees until they are officially removed from the pay roll."[8]

Sickness absenteeism records should be kept in the medical department. A record should be kept of each employee who is absent because of illness. Information is required from which frequency, disability, and severity rates can be determined by color, sex, age, occupation, department, broad cause group, specific diagnosis, by whom diagnosed, and termination. A statistical clerk in the medical department is required to assist the nurse with the records. Access to a monthly summary from personnel office records of total number of employees by color, sex, age, occupation and department is also needed. Statistical analysis of the records can be readily made, either in the medical department or in the personnel office on a monthly basis by a system of monthly summary referral forms. Sample forms for keeping these records are available.

It is difficult without such records in your own plant to determine accurately how much absenteeism is due to illness, or injury, or to personal maladjustments, or to transportation, or to housing, or to other circumstances beyond the control of the employees. With the knowledge acquired from these records, you may be able to determine how, when, where, and why lost time due to disability occurs in your plant; to tabulate these records monthly according to cause, nature, and dura-

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"The therapy of a majority of the cases of contact dermatitis encountered in industry", according to the noted dermatologist, Dr. Frank C. Combes[1], "requires no further medication than the intelligent use of a *good buffer solution such as Liquor Aluminum Acetate (Burow's solution)* . . . and a *good crude coal-tar paste.*"

His preference for wet dressings solution is **Domeboro Tabs** ("widely used in industry", particularly by Parkes[2] at Curtiss Wright for cutting-oil dermatitis)—because it is "a convenient tablet which, when dissolved in water, releases a *lead-free aluminum acetate in appropriate dilution,*" with a substantial percentage of boric acid.

The *crude coal-tar paste* used at New York University, according to Combes, "is manufactured commercially under the name **Daxalan**"—which has been found *superior to distillates, filtrates and pastes containing liquor picis carbonis.*

It must be properly applied for "optimum benefit", and Combes advises thinning with **Domolene** for spreading over a large area—because in his judgment its hydrophilic ointment base "does not materially lessen the therapeutic efficacy of the paste."

With tissue repair under way, and only erythema remaining, the use of **Domeboro Ointment** (each ounce of which, in a special hydrophilic base, possesses the therapeutic action of one Domeboro Tab diluted in a pint of water), permits a quicker return to work, while healing is promoted by its efficient topical action.

(1) Combes, F. C.: Indus. Med., July, 1944.
(2) Parkes, Morey: Indus. Med., January, 1944.

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tion of disabilities, and department or occupation of the patient. Your physician will then be in a position to apply intelligent control measures to the causes of high frequencies. Big dividends may be anticipated.

The medical director of one plant found that 50% of the absences due to illness occurred in 15% of the employees in his initial study. Intensive work on this group of 15% reduced its illness absenteeism rate to the average for the entire plant. Another company employing 5000 estimated from its experience an annual saving $70.00 per employee per year through a 50% reduction of sickness absenteeism. As handsome results as these, however, can hardly be anticipated in your plant if your program is based only on national averages or on records from some other plant. *You need your own records of experience in your own plant and you should build your medical program on knowledge of your own particular medical problems.*

What are some of the conclusions to be drawn from sickness absenteeism records? It has been estimated that last year over 500,000,000 man days were lost to American industry because of illness. Industrial accidents and occupational diseases combined probably accounted for 10% of this. The remaining 90%, or 450,000,000 man-days, was caused by non-occupational illnesses and injuries. According to the National Industrial Conference Board Survey in March, 1943, of certain industries where records have been kept, illness accounted for 51.27% of all absences, or 58.8% of the lost time. Illness accounts for a much higher percentage of all absences in peacetime. The lesson from these figures is clear. We all know the importance of prevention and control of occupational accidents or illnesses. It is even more important to control the preventable illnesses and accidents of the non-occupational group which are responsible for nine times as much absenteeism.

May I draw just a few more lessons from sickness records. Respiratory diseases cause about 50% of all illnesses in industry. Chest x-ray surveys have shown about 15 cases of pulmonary tuberculosis per 1000 employees; about five of these cases per 1000 are active cases. Tuberculosis is still the first cause of death in the 15-to-45 year age group in the United States. Venereal disease surveys in Georgia industries have shown an incidence of syphilis in white employees of 19 cases per 1000, and in colored employees, of 229 cases per 1000. Both tuberculosis and syphilis are infectious diseases, transmitted from person to person by contact. Let us break these contacts. Let us find the infectious cases and protect ourselves from them. Let us insist on routine chest x-ray examinations and blood tests. If we do not do this rates are bound to rise under war time conditions. This is the lesson of history. If we do apply our knowledge diligently, it is our hope to eradicate both these diseases as major causes of death and disability in the U. S. A. I believe this is possible in our generation, if enough of us put our shoulders to the wheel.

Studies of Environmental Hazards

LET US now consider the approach to the determination of health hazards in industrial occupations through study of the environment. The National Association of Manufacturers classifies the hygiene of the working environment in three main fields:[9] (1) atmospheric and occupational hygiene by which occupational diseases are controlled; (2) plant sanitation by which communicable diseases are controlled, and (3) safety engineering by which accidents are prevented.

There are well over 100 recognized occupational disease hazards which may exist in our modern industrial plants. There is no complete listing of all of them, for new industrial processes and new chemicals are continually being introduced. The answer to the question "What is the latest occupational disease?" is "T'aint out yet!" Dublin and Vane have classified and listed them.[10] Dreessen[11] has grouped them into six major groups classified according to causative agent. "Thus, under *toxic metals or metalloids* may be listed poisoning caused by arsenic, zinc (brass), cadmium, lead, manganese, phosphorus, radium, and mercury; under *dusts* are listed pneumoconiosis and/or silicosis with or without tuberculosis and asbestosis with or without tuberculosis; under *gases, vapors and fumes*, poisoning caused by hydrogen fluoride, nitrous fumes, sulfur dioxide, carbon disulfide, hydrogen sulfide, hydrogen cyanide, carbon monoxide, nickel carbonyl, halogenated hydrocarbons, methyl alcohol, benzene, and nitro and amino derivatives of gasoline, benzene, and phenol; under *occupational skin hazards*, chrome ulceration epitheliomatous cancer or ulceration or dermatitis, infection or inflammation of the skin or eyes due to oils, cutting compounds, lubricants, dusts, liquids, fumes, gases, and vapors, of the skin or surface of the eye due to pitch, tar, and bitumen, and dermatitis venenata; under *infectious agents* may be listed such diseases as anthrax and glanders; and under *physical agents* may be listed compressed air illness, radio-active substances, cataract, and impaired hearing caused by noise.

The respiratory tract through inhalation of contaminated air offers one of the most rapid and deadly portals of entry for toxic materials. Hydrogen cyanide or hydrogen sulfide in sufficient concentration are deadly in a matter of seconds or a few minutes. Ninety per cent of inhaled lead fumes are immediately absorbed by the blood vascular system; and it is the lead in circulation which is harmful in lead poisoning. Compare this with the 10% of ingested lead which is absorbed from the intestinal tract, the remaining 90% being excreted in the feces.

Study of chronic benzene poisoning and related occupational diseases which affect the blood forming organs makes one wonder how many of the deaths attributed in the past to blood dyscrasias or other obscure diseases of unknown etiology may actually have been the result of chronic intoxications from contact with, ingestion of, or inhalation of harmful substances in the modern industrial environment.

Summary

I HAVE endeavored to present to you the purpose of determining health hazards in industrial occupations and to describe briefly the two major approaches to such a study. I have tried to emphasize the value of the sickness absenteeism audit, and the study of the environment. Our examination of the other approach, that is, of the study of the individual, has demonstrated, however, that with all due acknowledgement of the importance and necessity and value of the determination and control of health and accident hazards indigenous to industry, the industrial worker is exposed to even greater health and accident hazards which are common to the community as a whole.

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Hydrocarbon Habit

CHLORINATED hydrocarbons are habit-forming narcotic agents. As soon as there is any indication that an operator is developing a craving for exposure to these materials he should be transferred to another type of work and given a thorough physical examination.

—From "Hazards of Carbon Tetrachloride in Present-day Use," by SAMUEL R. SHERMAN and CLIFFORD F. BINDER, abstr. in *Current Medical Digest*, January, 1945.